

The National Locksmith

**MORE PAGES!
MORE ARTICLES!
MORE INFORMATION!**

**COPIES
Chrysler L Series
pages 38-40**

April 1994
Volume 65, No.4

DOOR HARDWARE

The Front Line Of Defense
page 32

Hardware For Life, Safety & Security
page 36

What Have You Got To Lose?
page 40

The Locksmith & Builders Hardware
page 42

MINI-SECTION

Personal Safety Products
starts page 45

CONTENTS

April 1994 • The National Locksmith • Vol. 65, No. 4

FEATURES

16

The Titan

Serving the Titan knobset.

22

Auto Opening: In-The-Door Tools

Using Car Opening Tools.

26

Basic VOM Meter Testing: Continuity, Resistance, Current

Meter reading the final VOM functions.

32

The Front Line of Defense

Hardware - The first line of defense.

36

Hardware For Life Safety & Security

New needs, new hardware.

40

What Have You Got To Lose?

You can't lose with key control.

42

The Locksmith And Builders Hardware

Making builders hardware profitable.

45

Personal Security: A High-Profit Opportunity

This is the first of the Mini Section editorial.

48

Personal Security Profit Makers

An array of profitable safety products.

52

The Barracks

On the job, in the barracks.

60

Schlage Padlocks

Reviewing the Schlage padlock.

86

Conquering GM Ignitions

GM ignition key without removal.

89

Masterkey With Multimaster 3.0

New masterkeying software for the locksmith.

CODES

93

1994 Chrysler L Series

L0001-L1790

DEPARTMENTS

5

COMMENTARY

6

LETTERS

12

NEWSMAKERS

30

BEGINNER'S CORNER

56

THE LIGHTER SIDE

62

BUSINESS BRIEFS

64

THRU THE KEYHOLE

79

TECHNITIPS

84

BITS & PIECES

114

SHOP TALK

115

INDEX OF ADVERTISERS

115

INDUSTRY MEETINGS

118

TEST DRIVE



On The Cover

A decorative leverset from Baldwin Hardware Corporation illustrates that door hardware can beautify as well as protect.

**Click on the article
you wish to read**

Editor/Publisher Marc Goldberg

Managing Editor Tom Seroogy

Production Director Sandy Kucharski

Art Director Jim Darow

Technical Editor Jake Jakubowski

Technical Writers Carl Cloud, Steve Gebbia, CML, Eugene Gentry, Giles Kalvelage, Dale Libby, Joseph Locke, Tom Mazzone, Dave McOmie, Don Probasco, Sara Probasco, Jack Roberts, Shirl Schamp, Jeff Scott, Rick Segerstrom, Robert Sieveking

Director of Sales & Marketing Jeffrey Adair

Advertising Account Manager Debbie Schertzing

Circulation Manager Diane DeGrace

Assistant April Pundsack

Advisory Board Mike Elsberry, Steve Dyson, Buddy Logan, Sean DeForrest

National Publishing Co.

The National Locksmith® ISSN #0364-3719 is published monthly by the National Publishing Co., 1533 Burgundy Parkway, Streamwood, Illinois 60107. Second class postage paid at Bartlett, Illinois 60107 and additional mailing offices USPS 040110. Subscriptions \$36.00 per year in the USA; \$50.00 per year in Canada; \$59.00 in all other countries. Single copies \$5.00 each. Postmaster, please send change of address to National Publishing Co., 1533 Burgundy Parkway, Streamwood, Illinois 60107. ©1994 by the National Publishing Company. All rights reserved. Printed in the U.S.A.



The
Audit
Bureau
Member



Questions or problems with your subscription?
Call (708) 665-0540
for all customer service calls on existing subscriptions.
For all other inquiries, call
(708) 837-2044, or fax (708) 837-1210.

COMMENTARY

High Drama in the Hot Desert

Who says editors don't make good locksmiths in a pinch? Recently, I flew to Phoenix for a meeting of the Security Professional Council. The council is working on a number of ways to promote the locksmith industry to the public.



Marc Goldberg
Editor/Publisher

Since this was my first trip to Arizona, I decided to take a tour and go see the Grand Canyon. From Phoenix to the canyon was a trip of about four hours in a van with a few stops along the journey.

Way, way, way out in the middle of the desert, our guide stopped the van to show us a small church. Besides the church, all that was visible for miles around were cliffs and cactus. I enjoyed seeing the church. But more enjoyable yet was the guide's reaction when he realized that he had locked the keys in the van. (He turned almost as many colors as the varied landscape. I don't think it was the heat.)

As panic set in amongst the folks on my tour, I remarked upon the coincidence of a locksmith editor getting locked out. No one wanted to hear the word "editor." All they wanted to hear was the word "locksmith."

Of course the pressure was on. There would be no way to get a "real" locksmith out there. And all eyes were sizing me up as I examined the vehicle. A gentleman parked nearby offered me the use of his meager tool collection...a couple of screwdrivers, a hammer...and some *wire*.

I brought out the side window with the screwdriver, bent a hook onto the wire and looped the button on the sliding door. Pop! We were in. I'm glad I could uphold the honor of locksmiths everywhere. Victory was especially sweet because another guy on the tour professed to know all about car opening. He just scratched his head and said he wished he had a slim jim.

Doesn't that beat all? The editor showed up the COP.

By now, those of you who ordered copies of *Crime Prevention* have received your copies. I bet most of you are out of them already.

Today, I received a call from a locksmith in Illinois. He received his 100 copies just yesterday. He was calling today to order more! He couldn't believe how quickly he ran out, but people were very interested to take a copy. Of course, he had imprinted his name and phone number on each issue. So I'm sure this particular locksmith will be doing more business soon due to his \$20 investment.

We do still have a few extra packages of *Crime Prevention* available. We're sure to run out of them shortly. However, there will be another edition out soon, so please order early. And those of you who did order the first issue, be sure to order again to receive the next one.

I still can't think of a more economical way to promote a locksmith company.

Those of you who are members of the National Safeman's Organization know that we have recently introduced Safeman Certification. NSO members may now take the Level One Test to become an RST, Registered Safe Technician.

The low test fee of \$50 is only one benefit of membership in the NSO. Another plus is that Dave McOmie's new safe book, *Safe Opening Volume 5*, comes free with membership. Volume 5 is subtitled, "What's New In Safes." It covers all the most recent introductions by all the big manufacturers.

Marc Goldberg

LETTERS

Comments, Suggestions and Criticisms

The National Locksmith is interested in your view. We do reserve the right to edit for clarity and length. Please address your comments, praise, or criticism to Editor, *The National Locksmith*, 1533 Burgundy Parkway, Streamwood, IL 60107. All letters to the editor must be signed.

A+ Awarded To TNL And Its Advertisers

Dear Marc:

I want to take the time to compliment two of your advertisers, Aero Lock and Septon Inc. Recently I had minor shipping problems on orders received from each company. A quick phone call to each of them and within 48 hours I had the proper parts in hand and was able to satisfy my own customers. Customer satisfaction makes and grades a business. They both rate an A+.

Thank you Tom Seroogy for the

phone call. It's good to know that a publication, *The National Locksmith*, is interested in our comments and cares enough to follow up on them. A+ to your organization also.

Greg Voorhees
Alabama

Masterkey Course Benefits Reader

Dear Marc:

I want to let Tom Seroogy know how much I enjoyed the Master Key Course. The instructions were clear and helpful. Although I would probably purchase a complex system, knowing how it is done will help. I would highly recommend the course to new as well as experienced locksmiths. I look back on mistakes I had made in the past and the agony of

"ghost keys" popping up.

Your master key guide on pages 305-368 is most helpful. I would like to have one for 5 pin and 7 pin and also for Kwikset.

You January 1994 *The National Locksmith* is great. As I read through it I detected a change (for the better). I copied your "Understanding the Rotating Constant" and put it in my masterkey course book.

Cy Rollins
Delaware

Reader Sees No Market With ADA Law

Dear Marc:

I've been reading a lot lately about how locksmiths are going to make a lot of money because of the ADA laws. Don't bet on it. My advice is, don't go out and buy a bunch of lever sets. I've only been a locksmith for a short time, but I was a contractor for a long, long time. Contractors have been installing this type of access for at least 15 years. Much longer in quality homes and major renovations. When have you ever been in a K-Mart or public building that didn't have easy access.

Secondly, no one, repeat, no one can make building codes retroactive! If they could, half the houses in Calif. would have to be torn down because they do not meet present codes pertaining to earthquakes. The same goes for where I live. Houses at the seashore must be up to code for flooding. Most of them aren't, but when the hurricane gets them and major repairs are due, they have to be brought up to code.

Thirdly, just picture a couple of Feds walking into a Bodega in the South Bronx and telling the owner, whose net income is about \$300 a week, that he



ASP - Your Auto Service Center for the World

[Click here for more information](#)

has to get a new door and move the canned goods out of the aisle to make room for a wheelchair. They'd be lucky to get out of the neighborhood alive.

So please, enough of the propaganda about the ADA. This is lock manufacturer inspired.

James Harding
Delaware

Editor's Note: I agree that much of the work being done due to the ADA law is either not locksmith related or is being done by contractors as part of an overall remodeling plan.

However, I disagree with believing that their isn't a significant market or saying that the "propaganda" is lock manufacturer inspired.

Recently many large corporations, including McDonald's, Service Merchandise and Burger King, started making nationwide changes to their buildings to meet ADA standards. Fortunately locksmiths are involved in varying degrees in the transition.

Service Merchandise for example, is installing the Door Aid door assists to many of their stores. In many cases a locksmith has been hired to do the installation.

Several of the privately owned Burger Kings in the Chicago area have had locksmiths changing their door knobs to levers.

A local hospital recently called a locksmith I know to convert their Corbin mortise locks to lever function.

The fact of the matter is, ADA is a reality. How well it will be enforced we've all yet to see. But in the meantime, those wanting to take advantage of the law can find a ready and willing market if they look.

A Technitip Thank You

Dear Marc:

I'm not sure I can spell "flabbergasted" but it certainly describes me.

Little did I know my little Technitip would garner such a wonderful prize as second place in your 1993 annual contest.

I'm really happy to have been

chosen and will put the HPC punch to good use.

I'm especially happy if I have contributed in making everyday jobs a little easier for the fellow locksmiths.

Dick Staples, CML
Washington

Reader Sends Service Truck Photos

Dear Marc:

Enclosed is a photo of our new locksmith truck. Thought you may be interested.

John Romano
Nevada



"Remodeled" service van.

Our Condolences

Dear Marc:

With regret I need to inform you of the recent death of Don Barraclough CPL. Mr. Barraclough passed away January 11, 1994. Don was 47 years old and is survived by his wife Charlene, two children Christian & Tracy.

Don was very active in the South Florida Locksmiths Association and the ALOA Chapter. Don has served as chairman of the ALOA Chapter for the past three years.

Don will be mourned and remembered by hundreds of local locksmiths. He was a fine locksmith and good business man but he will probably be remembered most for his help to other locksmiths. He was never too busy to help others with their problems ranging from antique cars to the latest technology in our field. Don was always learning and was always in attendance at local and national conventions.

Roy Renderer
Florida



**We have it all.
Quality, Value,
& Service**

[Click here for more information](#)

NEWSMAKERS

New Products and Industry News

Automatic Gate's Housings

Automatic Gate Wholesalers is introducing a very affordable, high-quality environmental steel housing for mounting card readers, digital keypads, intercom stations, and key switches outdoors and in. These housings are constructed with 16 gauge steel, plated with zinc chromate, and include a slotted face plate assembly with a keypad cam lock for security. Custom sizes are also available to accommodate special dimensions. Call for prices.



For **FREE** Information
Circle 387 on Rapid Reply

Baldwin's Grade 1 Deadbolts

Baldwin Hardware Corporation deadbolts have been rated Grade 1 according to the ANSI/BHMA a 156.5-1992 Products Standards, the highest grading achievable for locking devices. This rating was successfully verified by an independent testing laboratory.

Baldwin Hardware deadbolts provide peace of mind for the homeowner through a product that meets the strenuous testing required for heavy duty commercial locks. Features include a case of heavy gauge steel, a hardened steel deadbolt insert, a high grade steel strike, concealed



mounting screws that resist tampering and guard against theft, and a free-turning cylinder guard fabricated from solid brass to resist gripping or twisting.

For **FREE** Information
Circle 388 on Rapid Reply

Keywatcher™ By Morse Watchman

Morse Watchman Inc., announces the introduction of its new Keywatcher system. Each key is fit to a "smart-key" which works in conjunction with an intelligent system that only releases the key to someone with a proper ID number, and it records access history of each key and user. The Keywatcher will automatically signal if a key is not returned. A pulsing beep emanates from the main storage box, indicating that a key is

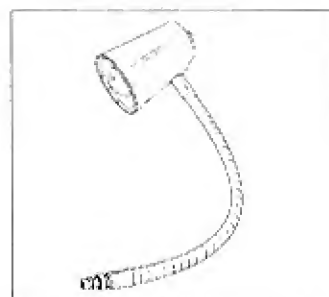


missing or overdue. In seconds the key can be traced, eliminating guesswork and the paper-chase created by outdated manual logs.

For **FREE** Information
Circle 389 on Rapid Reply

New Lamp By Silca

Silca is pleased to announce that a new 110 Volt lamp is now available for the BRAVO U.S.A. and CLUB Jr. key machines that did not offer a lamp previously. A bulb is not included with the lamp due to breakage in transit, however, the bulb used is a standard 40 watt



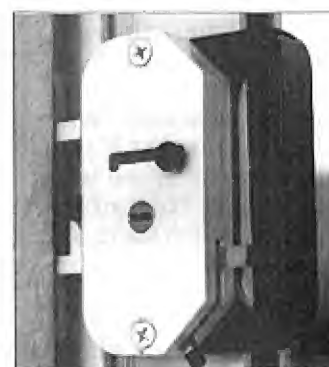
appliance bulb available almost everywhere light bulbs are found. The lamp can also be used to convert the CLUB or POKER PLUS machines from the 12 Volt halogen lamp to the new 110 Volt lamp for those that do not like the 12 Volt lamps since halogen bulbs tend to burn quickly.

For **FREE** Information
Circle 390 on Rapid Reply

Slideline Sliding Door Closer

Slideline, Inc. has introduced two new products, the Slidematic™ Closer and the Latchmatic™ Lock.

The Slidematic is a



specialty built hydraulic closer that when mounted to the tail of the existing sliding door, automatically closes it. The Latchmatic™ lock is a self-latching auxiliary door lock that latches the door after it has closed.

The Slidematic™ and Latchmatic™ meet new swimming pool safety legislation and are one of the most effective and affordable ways of complying with pool safety requirements.

There are over 58 million sliding doors in the U.S., with an additional 2.8 million being installed each year.

The products provide extra security for the home by preventing the door from being opened when locked or from being lifted out of the track. The closer also helps save on energy costs.

For **FREE** Information
Circle 402 on Rapid Reply

DL2500 Trilogy™ Digital Lock

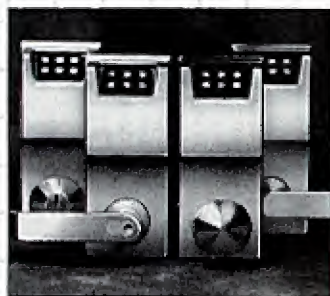
The DL2500 Trilogy™ Digital Lock is now being used on dormitory doors in major colleges and universities worldwide. Students select their own user codes out of a possible 29,000,000+ codes for added security. All locks on each floor are programmed

Continued on page 14

TRILOGY

Continued from page 12

with the same management code which only the resident advisor knows. The dean or head of security keeps the master code allowing them access to all doors on campus. Every semester the codes are changed in seconds increasing security and saving hundreds and in some cases thousands of dollars, in key blanks, cylinders, and labor. They are also being used on supply room doors, classroom doors, computer labs, maintenance dept. and more.



Weiser Lock Offers Keyed Leverset

Weiser Lock recently introduced its Dane Style, SP Series Keyed Leverset providing ease of accessibility with a stylish appearance.



The leversets are designed to meet the requirements of the Americans with Disabilities Act of 1990 (ADA) and are available in entry and storeroom locking functions. The SP Series leverset also offers easy installation with a reversible left and right handed function. The lever is available in either the stainless steel or bright brass finish to complement any decor.

Wilson Bohannon IC Core Padlocks

The best kept secret in the security market place is the 8500 Series of Interchangeable Core Padlocks from the Wilson Bohannon Lock Company of Marion, Ohio. Designed to accept the IC Core cylinders manufactured by the Best Lock Company, the solid brass body padlocks also accept 5, 6, and 7 pin cylinders manufactured by Arrow Lock, Falcon and KSP.

The IC Core padlocks are available with 1 3/4" and 2" bodies, utilizing solid brass, stainless steel and chrome plated hardened steel



shackles with 5/16" and 3/8" diameters. The padlocks use standard inside shackle lengths of 1", 2" and 3".

For FREE Information
Circle 393 on Rapid Reply

Door Hinge Catalog From Zero

Zero International's four-page catalog provides detailed specification guidance for the company's full line of heavy-duty, high-



The Innovation You Expect, with the Flexibility You Need!

[Click here for more information](#)

performance door hinge systems. The acclaimed UNIGEAR Continuous Door Hinge System is featured along with an array of pragmatic and aesthetic options that further enhance its versatility. In addition, the catalog highlights the new UNIPIN Continuous Hinge System, especially suitable for high-traffic applications, as well as Zero's cam lift hinges for use with sound-rated doors. For each system and option illustrated in the catalog, schematics to scale are supplied to accommodate use by specifiers in drawing plans.

**For FREE Information
Circle 394 on Rapid Reply**

Dor-O-Matic's New Vertical Rod

Problems in applying exit devices to narrow stile door have been solved with Dor-O-Matic's new Series 1490 Concealed Vertical Rod and 1590 Rim Touchbar Exit Devices. These units were designed to be used on doors with stiles as narrow as two



inches. Available in anodized clear, bronze, and black colors, these devices are made with all steel operating mechanism and aluminum end caps for years of trouble free operation. The Series 1490 and 1590 are excellent choices for retrofit and are available with full lever trim.

**For FREE Information
Circle 395 on Rapid Reply**

American Device's Alarm Exit Device

American Device Manufacturing Co. has introduced a battery powered alarm for its 4000 Series, 6000 Series and 8000 Series

panic and fire exit device lines. The alarm is a completely self-contained unit powered by one standard nine-volt battery (battery included). A low-battery power alert is built in. An optional adapter is available to convert the unit for use with hard-wired systems.

The units feature two LED's set in the touchbar. A flashing red LED indicates that the alarm is armed. A yellow LED will light indicating the alarm has been tripped, signaling that the door has been opened.



**For FREE Information
Circle 396 on Rapid Reply**

DoorTech's Router Template System

Norfolk Tools and Supplies introduces the new interchangeable DoorTech Router Template System that saves time mortising commercial doors, adapts for a variety of hardware, and eliminates router adjustments.

The DoorTech Template System makes it easy to mortise door edges for strikes, flushbolts, pivot hinges, and latch plates on both square and beveled edges on 1-3/8" to 2-1/4" doors. In addition, DoorTech's Automatic Depth Control System saves set-up time and reduces mistakes because the templates automatically set the router depth on all mortises up to 7/32" deep.



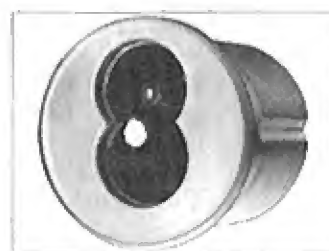
Each mortise pattern has its own precisely machined and clearly labeled template. Changing a pattern is as simple as snapping in a durable, compact DoorTech template that is easy to store in the shop and transport to the job site.

**For FREE Information
Circle 397 on Rapid Reply**

I.C. Cores New From Lori

Now your housing can have the same aesthetically pleasing finish that has always been available on the rest of your contract products.

The new Lori I.C. Core housing is scalped with solid brass and available in the following finishes:



US3, US4, US10, US10B, DURA, US26, US26D

Lori now offers a complete line of I.C. Core products, including 6 and 7 pin combined + uncombined cores as well as mortise, rim, and tapered housings.

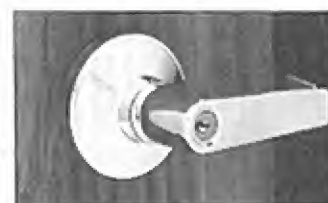
The cores are available in the Best A-L keyways as well as Lori's own #62 keyway.

**For FREE Information
Circle 398 on Rapid Reply**

PDQ's New Spirit Lever

PDQ introduces their new heavy duty SPIRIT lever lock complies with ANSI A156.2, Series 4000, Grade 2, but exceeds all Grade 1 requirements for both torque and cycle testing. The SPIRIT meets all applicable accessibility requirements of the Americans with Disabilities Act of 1990.

In response to market demand, the SPIRIT has



new, longer, 5-1/2" solid die cast levers. To guard against lever sag, heavy duty spring-in-the-rose construction and two thru-bolt mounting options have been incorporated. The cast rose plate has been specifically designed to eliminate "lever wobble" that characterizes many other Grade 1 and Grade 2 lever locks available in the market today. The SPIRIT lock is easily adjustable for any door that is 1-3/8" thick to 2" thick.

**For FREE Information
Circle 399 on Rapid Reply**

Safe 'T' Closer Spring Door Closer

The Safe'T' Closer is a unique spring door closer. It is small and unobtrusive, yet strong enough to close a door up to 150 lbs. It is UL listed with a 1 hour fire rating and has been tested up to 100,000 closings without failure.



The Safe 'T' Closer is ideal for commercial use (on hallway, exit, and stairwell doors in apartments, hotels, and condos) as well as residential applications (on the door between the garage and house, basement door, utility room door, and front and back doors). These doors need closing to help prevent heat and air conditioning loss, spread of fires, and accidents.

**For FREE Information
Circle 400 on Rapid Reply**

GENERAL SECURITY

THE TITAN LOCKSET

Test Article #46

by Giles Kalvelage

The Titan lockset, by Kwikset is an ANSI Grade 2, bored lockset. It's hard not to compare Titan to Kwikset because the standard Kwikset lockset has been a popular hardware item for decades due to its low cost, unique design and relative durability.

The Titan can be identified by the face plate of the latch assembly. (See photographs 1 and 2.) From its side, the crescent shaped spindle hole is that of the standard Kwikset line. An adjustable deadlatch is available that allows for the installation of the lockset on 2-32/8" or 2-3/4" backset. A

removable latch face allows for fitting to round or mortised door preps. It is recommended that the edge bore be 1" while the cross bore be 2-1/8". The Titan mounts to the door by mounting the latch first, then placing the outer knob in place through the latch and securing the inner knob onto the outer knob with two mounting screws.

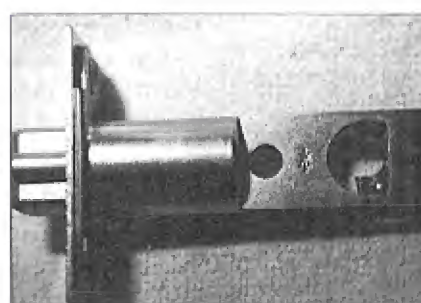
There is an attached housing over the spindle and screw stems of the outer knob assembly, offering support to the lockset and protection of the knob return spring and latch assembly. (See photograph 3.) The inside knob also has a knob return spring located under its inner rose. This "double spring" action gives the lockset a heavy duty feel and improves latch return over the standard Kwikset lockset.

Keying has been designed so that Titan locks may be designed into the keying system of standard Kwikset locks. When Titan and standard Kwikset locks need to work with the same key, Titan keyblanks must be issued. A Titan keyblank will work in a standard Kwikset lock, however, a standard Kwikset key will not operate in a Titan lock. Although the millings and length of the blades are the same for standard Kwikset and Titan keyblanks, the bow design and upper and lower shoulder configuration differences render the two key blanks non-interchangeable.

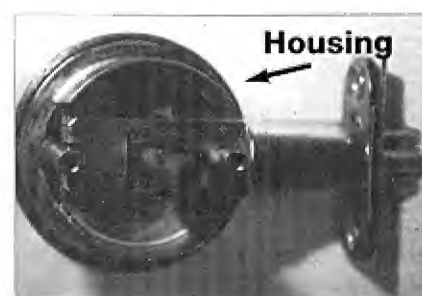
The Titan lock is designed to utilize a six pin system. The added chamber, however, has been placed between Kwikset's standard first cut and the shoulder. A "controversial" aspect of



1. Face of standard Titan latch.



2. The operation and design of this latch are identical to the standard Kwikset latch.

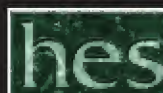


3. This housing adds to the weight and durability of this lock.



HPC, Inc.
Designing Excellence and
Manufacturing Quality since 1956

[Click here for more information](#)



the Titan pinning is that the first cut is .097" from the shoulder of the key. (See photograph 4.) The second cut is at .247", corresponding to the first cut of the standard Kwikset key, and the remaining cuts follow .150" thereafter, also standard Kwikset spacing.

The first cut also has a vertical slope at the shoulder side of the cut. Because the seat of Kwikset cuts are .080" wide, conventional code cutters have difficulty, at best, in creating the first cut from the shoulder. Major machine manufacturers are considering the development of a special cutter wheel which would provide a vertical slope designed for use in creating the first cut. The drawback of that cutter is the inconvenience of changing cutter wheels back from the special cutter to the standard cutter each time a key is cut. Other methods of creating the first cut have been for the locksmith to manufacture depth keys for the first cut, usually by hand filing, then using the depth keys on a duplicator for the first cut when cutting by code.

It is recommended that when rekeying a Titan lock all six chambers be used. Some have suggested not pinning the first chamber when rekeying. This is not a recommended practice because it unnecessarily

reduces the security of the cylinder. Also, the first chamber is located so close to the plug's key stop, a tumbler in the first chamber should add to the strength of the cylinder plug at the key stop. A preferable alternative would be to pin the first chamber to a #1 depth, which would require a key cut equivalent to the full blade height -

in essence, no key cut at all.

REKEYING THE CYLINDER

The Titan cylinder is removable from the face of the knob. The cylinder plug must be turned in order to remove the cylinder from the knob housing. There are two methods of achieving this end.

Method One - The Rekeying Tool

If a rekeying tool is available, there is no need to remove the entire lockset from the door. 1) Insert rekeying tool. 2) Turn 90 degrees counter clockwise. 3) Remove lock cylinder.

The rekeying tool is primarily an operating key with a ward cut out of the bottom of the blade between the second and third cuts of the key. These special rekeying tool key-blanks are available in boxed units supplied to locksmiths. However, they are not included in the bubble packed displays supplied to retail outlets. If an operating key is available and no rekeying tool is available, duplicate the operating key onto a rekeying tool blank.

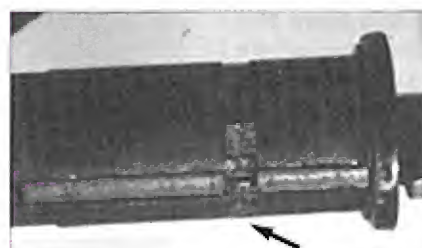
If no rekeying tool blanks are available, duplicate the key onto a Titan keyblank or equivalent (i.e. Jet K9), and file a cut on the bottom of the keyblank between the second and third cut. (See photograph 5.) If the rekeying tool is for only one use,



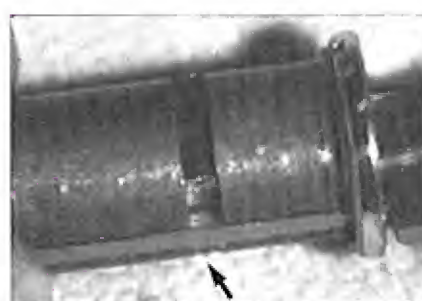
4. The first cut on the Titan key is between the shoulder and the first cut of the standard Kwikset key.



5. This ward cut on the bottom of the blade allows this key to remove the cylinder from the face of the knob without removing the lock from the door.



6. The ward in the removal tool allows the locking bar to drop into the plug.



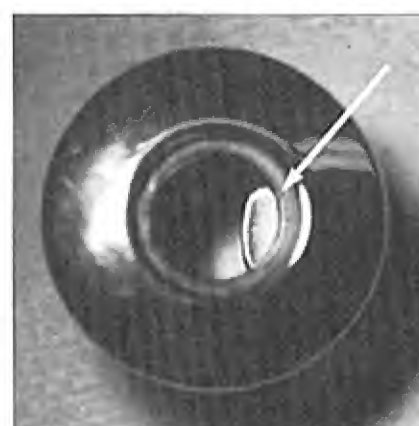
7. The lack of a ward cut on the working key prevents the lug from dropping into the plug.



8. Remove the clip from the back of the plug.



9. Use a plug follower to remove the plug.



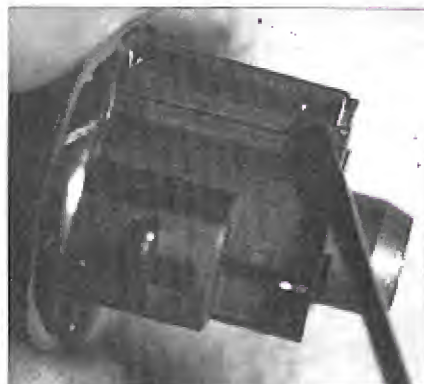
10. The locking bar falling into the plug area.



11. Removing the locking bar spring.



12. The locking bar and its spring.



13. Removing the spring retaining cap at the top of the bible.



14. Rekeying the cylinder without removing the plug and locking bar.



15. Depressing the spring assembly.

neatness is not paramount. The important aspect of the rekeying tool is that it allows the locking bar of the cylinder to extend into the cylinder plug when it is turned counterclockwise to the 90 degree position. (See photograph 6.) When the locking bar is extended, the cylinder comes out of the knob housing.

Conversely, when a regular Titan keyblank is inserted and turned, the bottom of the blade holds the locking bar in its position, securing the cylinder in the knob housing. (See photograph 7.) This will be noteworthy if picking the lock counterclockwise. When picked, the cylinder will release from the knob housing because no key is securing the locking bar.

After the cylinder is out of the knob housing, it may be rekeyed by removing the "C" clip at the rear of the plug, turning the plug and removing it with a follower. (See photographs 8 and 9.) When removing the plug, be careful at the locking bar, it may stop the follower. (See photograph 10.) However, finesse and determination can usually get the follower through the shell.

If the challenge is more than you wish to bear, the locking bar is removable by gently pulling the spring toward the back of the plug. (See photograph 11.) When the spring is removed, the bar should drop out. (See photograph 12.)

Alternatively, by removing the spring retainer cap at the top of the bible and dumping the contents of the cylinder out, the cylinder can be rekeyed through the top of the cylinder without removing the "C" clip or locking bar. (See photographs 13 and 14.)

To replace the cylinder using method one, it is necessary to create a new rekeying tool to operate the new combination - especially if the lockset is mounted on the door. This rekeying tool method is especially useful when masterkeying exists. The rekeying tool can be made using the bitting of the TMK.

Method Two - Conventional

When rekeying only one or two locksets, it may not be desirable to create two (or more) rekeying tools. In this case, the lockset must be removed from the door. If the client hasn't just handed the lock to you, it's a matter of unscrewing the two screws from the inside knob and removing the lockset from the door.

Turn the outside knob assembly so that the convex side of the spindle is facing you. Insert a probe, nail, or other object into the rose between the



16. Using the Kwikset cylinder removal tool to turn the smaller, center spindle into position for removal.



17. Removing the center spindle.



18. Using the removing tool to remove the cylinder.



19. Knob with the cylinder removed.

spindle housing and the mounting screw stem. You will be depressing the detente slide of the spindle/knob return spring assembly (similar to the method of depressing the spring assembly on a standard Kwikset lockset). (See photograph 15.) Tension should hold the tool in place.

Continued from page 18

Turn the round, center spindle with a Kwikset cylinder removal tool or thin blade screwdriver to line up the boss of the spindle with the slot of the plastic bearing. (See photograph 16.) Gently pull outward to remove the spindle. (See photograph 17.)

Once the spindle is removed, the operating key can be inserted into the cylinder and turned 180 degrees. The locking bar will retract, allowing the cylinder to be removed from the knob housing. (See photographs 18 and 19.)

Rekey the cylinder as described in method one.

Once the plug is back in the cylinder assembly, with the new key, turn the plug 180 degrees, insert the cylinder into the knob housing, rotate and remove the key.

Insert the round, center spindle into the rear of the knob housing. The spindle will snap back into place without the use of the probe or nail in the spindle spring. (See photograph 20.) (When the round spindle is in place, the operating key does not allow the plug to rotate to the 180 degree position.)

INTERESTING NOTES

1) Although not necessarily designed to be serviced, the inside knob does house a return spring. This spring may be observed by removing



20. Replacing the center spindle.



21. To get to the outside knob return spring, first remove the spiral retainer.



22. ...the cover.



23. ...another spiral retainer...



24. ...knob return clip...



25. ...spring cover.



26. ...and, finally, the spring.

the first spiral retainer, cover, second spiral retainer, knob return clip, spring cover and finally, the spring. (See photographs 21 through 26.)

2) The inner housing can be removed from the outer knob assembly by pulling outward. The plastic bearing will slide off the shaft exposing the spindle/knob return spring. In this "naked" condition, the lockset looks like a standard Kwikset lockset, except that there is an additional loop in the spring. (See photographs 27, 28 and 29.)

Titan deadbolts do not use this rekeying procedure. Their service will be covered in a later article.

Continued on page 110



27. To remove the inner housing slide the housing and plastic bearing up the spindle.



28. Housing and plastic bearing removed.



29. The outer knob return spring.

AUTOMOTIVE SECURITY

AUTO OPENING: IN-THE-DOOR TOOLS

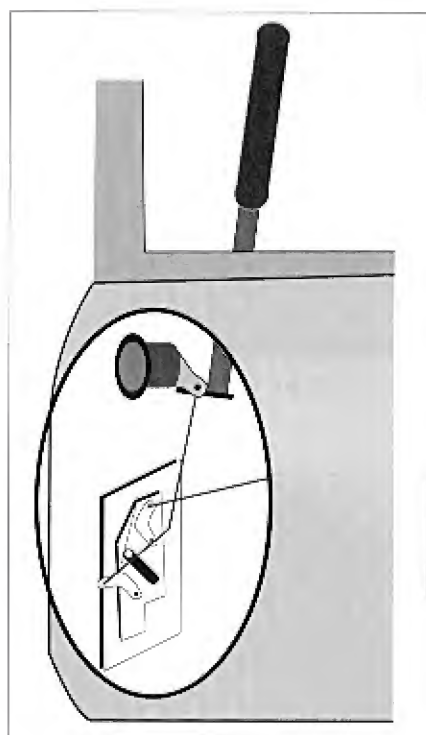
Test Article #47

Using opening tools is probably the most common method for opening a car. Tools can generally be broken down into two types, based on the method of attack. In-The-Door tools are tools used to enter the interior of the door to attack either the lock pawl, the vertical or horizontal linkage, the bellcrank or the latch.

The Through-The-Window tools enter directly into the auto's passenger compartment and are used to grab the keys, open a window, activate the lock button or electric lock, or pull on the interior release handle. Following is a short description of the In-The-Door techniques. Next month we will look at Through-The-Window methods.

Pawl

This method can be used on any



1. Attacking the lock pawl is probably one of the oldest of the entry methods and is still used on some vehicles today.

vehicle that has lazy cam or pawl lock construction. Typically, this means most vehicles before the early 1980's. A few manufacturers, such as Chrysler/Plymouth used a lazy pawl on most of their vehicles till 1989. These locks can be identified as the standard Chrysler single sided, five cut key. Acura and Honda also have several models that utilize the lazy pawl.

To attack the pawl, spread the door back from the window using wedges. If necessary, insert a light to locate the pawl. If the pawl needs to be pushed down to unlock the door, place a tool on top of the pawl and press. For pawls that need to be lifted to unlock the door, use a tool to hook the pawl and pull up. (See illustration 1.)

Often the pawl is guarded by a cover. In these cases it may be necessary to bend a tool to enter an access area or to try another method.

Another type of pawl attack works by gaining access to the inside of the door through the holes used by the exterior latch release handle or, in the case of the standard five pin tumbler Chrysler lock, through the lock key way.

In gaining entry through the handle hole, use a probe that is bent correctly and long enough to reach the back of the lock pawl. Lifting up just slightly on the handle (just enough to give you room to work), insert the tool and make contact with the lock pawl. Once contact is made, move the pawl either up or down to unlock the door.

Chryslers using the single sided five cut key with the lock separate from the handle can be entered by using a simply bent tool. When attacking a Chrysler, insert your probe down into the keyway. Exit the lock through the drain hole found at

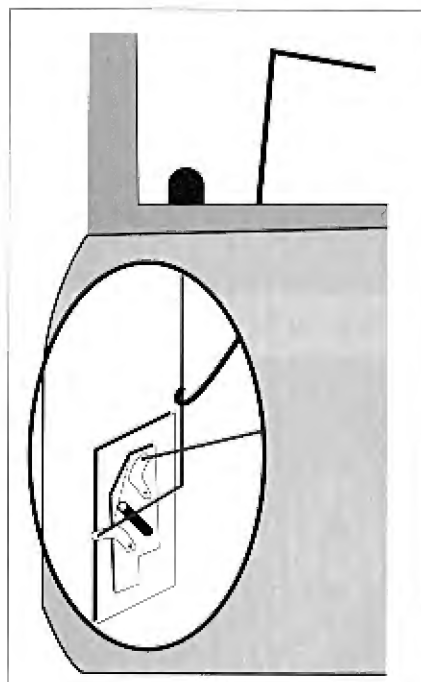
the front, bottom of the lock. Turn the tool in the direction of the pawl and either raise or lower the pawl to open the lock. (See photograph 2.)



2. The Chrysler lock design allows a tool to move through the drain hole and move the lock pawl.

Vertical Rod Tool

It's apparent by the name just what we are looking for with this tool. Vertical linkage is linkage that runs up and down in the door and may be used for the exterior lock or exterior handle, or the interior lock button and sometimes the inside release handle.



3. The vertical linkage.

Many times vertical linkage is also attached to the solenoid of an electric door lock system.

To work on this style linkage use a vertical rod door tool. A typical tool has a hook at the end to hook and trap the lock linkage rod. Then, separate the window sash and window using a window wedge. Insert a light to locate the vertical linkage rod that goes between the interior lock button and the latch's lock mechanism.

Once the linkage is located, hook the linkage rod with the hook end of the tool. Twist the tool to bind the rod and lift. In some instances attaching a layer of double sided tape or another sticky substance to the hook end of the tool, allows for a better grip on the rod. (See illustration 3.)

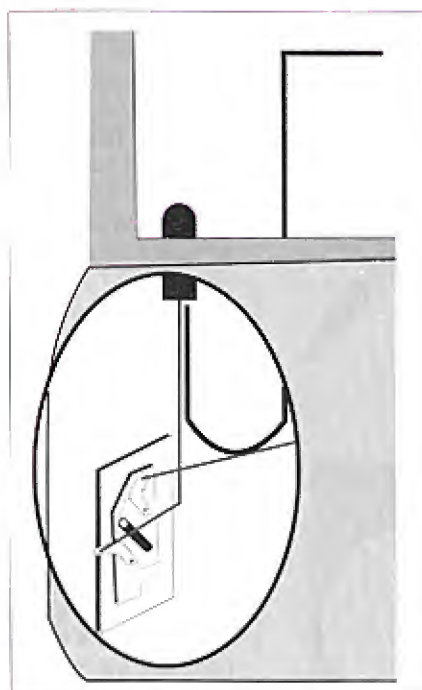
A version of this technique attacks the bottom of the interior lock button. To use this method slide a "J" shaped tool into the door and pull it up underneath the window. Place the end of the tool underneath the lock button and lift. (See illustration 4.)

In some vehicles where the exterior door lock is covered or out of reach, it is often possible to grasp its linkage rod and push down or pull up to unlock the door. This is only possible, of course, if the lock utilizes a lazy pawl construction.

As we moved into the mid and late 1980's, vehicle manufacturers started adding guards and covers over the linkage rods. Toyota has been especially persistent in their cover up, although most manufacturers do this to one degree or another.

For many of these vehicles, including Toyota, there is often a small space at one end of the guard leaving enough exposed linkage to affect an opening. It is here that you want to make your attack.

In many Toyotas the vertical lock button linkage is covered by a plastic tube. Many times it is possible to grasp this tube and apply enough pressure to bind and move the linkage. If this does not work, use one tool to bind and lift on the tube, this will lift the tube enough to expose a portion of the linkage. Use another tool to grasp and move the exposed linkage.



4. Using a J tool to come up under the lock button.

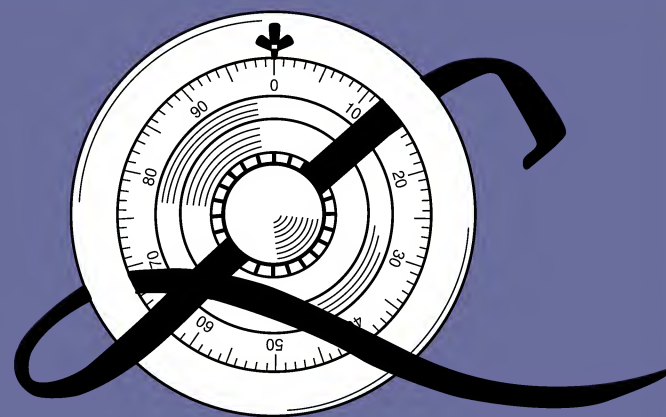
Honda four doors (from as far back as 1980 and all the way to 1993), Mazda, Mitsubishi, Fords with the early 10-cut system, Hyundai and many others, have unobstructed access to the vertical lock button rod.

Horizontal (Slide Lock) Rod Tool

Also apparent by the name, horizontal linkage is linkage that runs front to back in the door and may be attached to the exterior lock or handle, or the interior lock button and the inside release handle. When horizontal linkage is attached to a solenoid of an electric door lock system it is usually connected or linked with a bellcrank.

To work on this style linkage, separate the window sash and window using a window wedge. Insert a light to locate the horizontal linkage rod that goes between the lock button and the latch's lock mechanism. If the interior latch release handle uses horizontal linkage and operates whether the door is locked or not, this may be used as an alternative for opening the door.

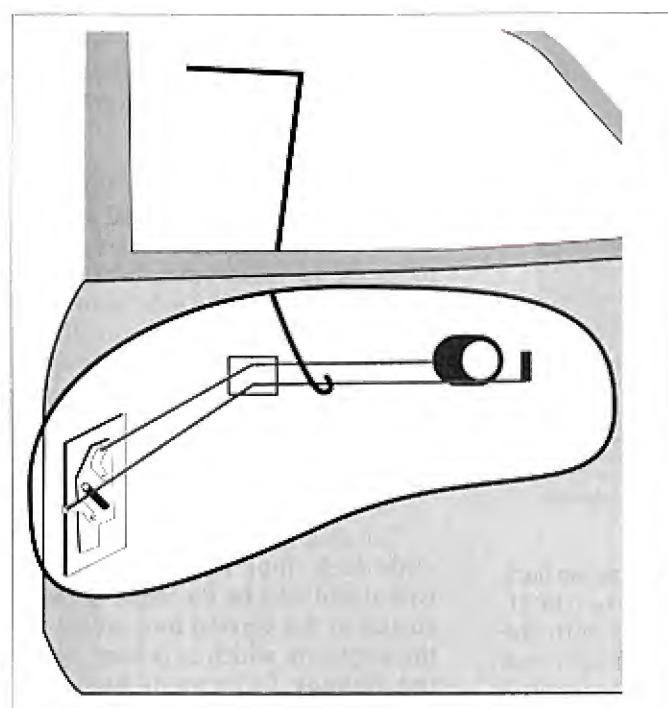
For this job a horizontal rod or slide lock door tool is needed. A typical tool may be the same or looks similar to the vertical tool except for the angles in which it is bent. Once the linkage is located, hook the linkage rod with the hook end of the



Lockmasters has a 44 year history of training security professionals.

[Click here for more information](#)

tool. Twist the tool to bind the rod and move forward or backward to unlock the vehicle. In some instances attaching a layer of double sided tape or another sticky substance to the hook end of the tool, allows for a better grip of the rod. (See illustration 5.)



5. The horizontal linkage

Again, the early to mid 1980's saw changes in many vehicle locking systems that utilize a horizontal linkage system. General Motors, for instance, makes extensive use of this system in their mid and small size vehicles. 1980 to 1993 Honda two door models can all be opened using a simple horizontal or slide lock tool.

For some vehicles, including late model Toyotas, General Motors large sized cars, and several other manufacturers, the linkage is run between the door panel and door or have installed plastic and metal guards. If an access hole cannot be found, an alternate method must be used.

It should be noted: on vehicles where the door unlocks automatically when the interior latch release is activated, it is often possible to grasp the linkage for the interior release handle and open the car.

Bellcranks

Often shields and guards make it unfeasible to open a car by going to the lock or linkage. In these cases, a

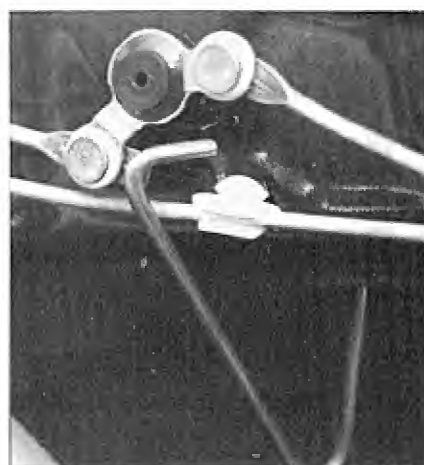
bellcrank attack may be the next best option. Bellcranks are flat metal levers or pivots, linking different pieces of linkage together. Because linkage can only move in a single direction (back and forth, up and down, etc.) bellcranks are often used to transfer their movement to another linkage rod in order to change direction.

Bellcranks can be attached to just about any portion of a vehicle's door, and, in fact, are often hidden in obscure spots. In general, bellcranks are found where horizontal linkage is found. For the most part, the movement of this linkage needs to become vertical by the time it reaches the locking mechanism of the latch.

While it's impossible to assign bellcrank attacks to any

particular make or model, they are quite effective in late model Toyotas whose linkage is quite guarded. This method is also effective on the 1986 GM Cadillac DeVille. This horizontally designed linkage incorporated several hard to get bellcranks and a vertical slide lock button. (See photograph 6.)

In many of these attacks it is necessary to first find the bellcrank. This is done by simply tracing the



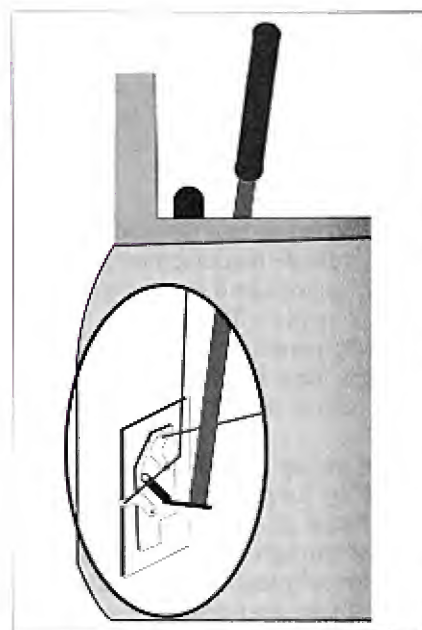
6. The bellcrank attack used on a Toyota Camry.

path of the guarded linkage from the latch up to the point where it disappears behind the door panel. It is usually at this point, where the guard ends, often leaving an access hole available for a tool to make contact with either the linkage or a bellcrank. One sure sign of a bell crank is finding a large rivet or bolt head on the inside of the door that coincides with a marked difference in the direction of the linkage.


Latch

Attacking the latch is the last of the In-The-Door techniques. For some vehicles, this is the best method of attack, including many Volkswagens and Renault's Nieman door lock that uses a stick shaped nylon pawl.

There are two ways in which the latch can be approached. In some vehicles, many GM's for example, the whole locking mechanism can be bypassed and the latch directly released. On the Renault and Volkswagen, the lock mechanism is tripped and the door can be opened. (See illustration 7.)



7. Attacking the latch directly is sometimes the only way to open a vehicle.

The latch attack is often the only way to open vehicles that have been damaged, linkage disconnected or the latch frozen or corroded. Once the linkage has been disconnected, entry to the car can be made by triggering the lock mechanism and opening the vehicle. As with all other In-The-Door methods, use a wedge and light. 

ELECTRONIC SECURITY

BASIC VOM METER TESTING: CONTINUITY, RESISTANCE, CURRENT

Test Article #48

Continuity and Resistance Reading

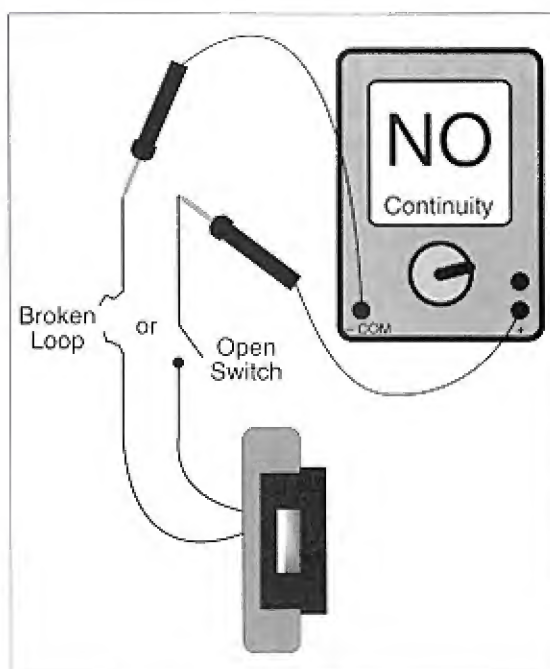
Testing for continuity and resistance require the same procedures and will, therefore, be covered as one operation. In fact, both tests are nearly identical in nature as well, and can often be used interchangeably for various testing and troubleshooting inspections.

The main difference between the two tests is that testing for resistance yields a quantitative or measured result, while continuity yields a pass-fail, open-closed qualitative result.

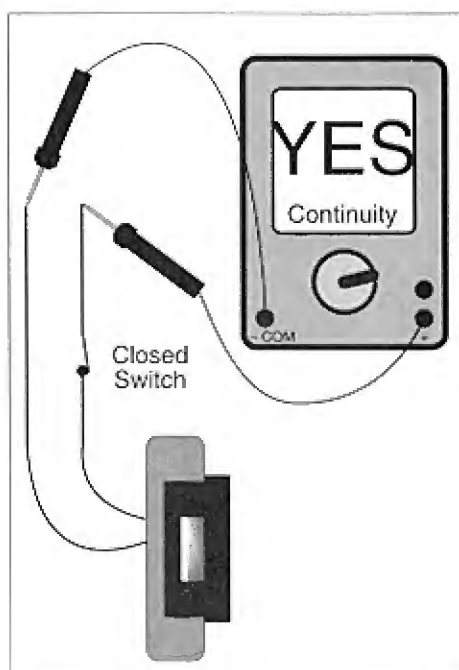
When testing continuity, for example, the circuit, portion of a circuit or a load is checked for breaks or open sections (i.e. an open switch, burned solenoid or coil, etc.). If there is a break or open section between the two points being tested, then the circuit is not continuous and there is no continuity. A circuit that does not have continuity, caused by a break or open switch, cannot conduct electricity. (See illustration 1.)

If the circuit between the two points being measured is not broken there is continuity and the circuit can conduct electricity. (See illustration 2.) Notice that this test does not measure the amount of continuity or conductance (how well a material can conduct electricity) of the circuit. It simply states whether electricity can be conducted or not conducted.

Resistance, on the other hand, is a measurement indicating exactly how much a circuit resists the flow of electricity. Like the continuity test, it can be used to check for a break or open section in a circuit. If the section being tested shows that there is zero resistance, then there is no break in the circuit and electricity can flow. If the section being tested shows a resistance of infinite, then there is a break in the



1. A no continuity reading on the meter indicates that there is a break or an open switch in the circuit or loop.



2. A continuity reading on the meter indicates that the circuit being tested is complete and without breaks.

line and electricity cannot flow. In this case, just like continuity, the circuit is simply tested for whether electricity can be conducted or not conducted.

Unlike the continuity test, however, the resistance measurement can also show us just how much the circuit being tested will hinder or restrict the flow of electrons. This is, of course, the resistance of the circuit and it is measured in ohms (Ω). (See illustration 3.)

Resistance readings are important for checking alarm loops; looking for shorts; testing the health of solenoids, coils and other loads in a loop; detecting bad, worn and/or corroded switches, terminal and wire lead connections, etc.

Making The Measurement

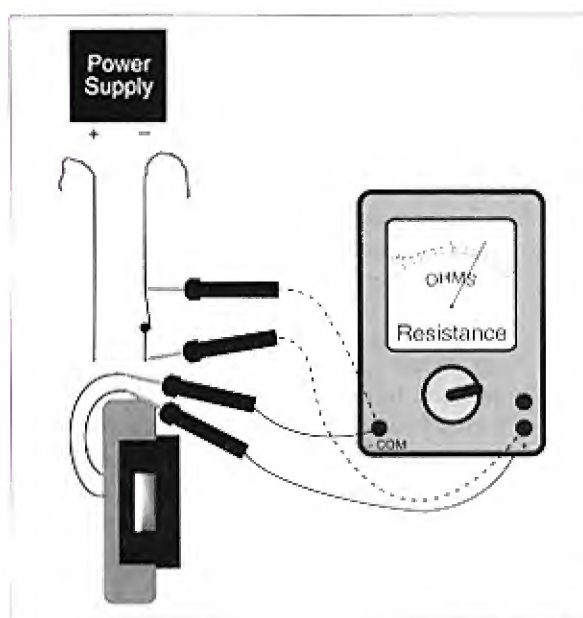
When making continuity or resistance readings, the circuit, loop or load being measured must be separated from the power supply and from the rest of the circuit. (See illustration 4.)

Not disconnecting the power supply could damage the meter. Not removing it from the rest of the circuit may render an incorrect reading. Because electricity will follow the path of least resistance, if the circuit being tested includes more than one branch (in a parallel circuit, for example) then the continuity or resistance will be for the combined branches within the circuit being measured. (See illustration 5.)

Once the section or load being tested has been removed from the power and separated from the rest of the circuit, place the probes across, or on each side. Then read the meter.

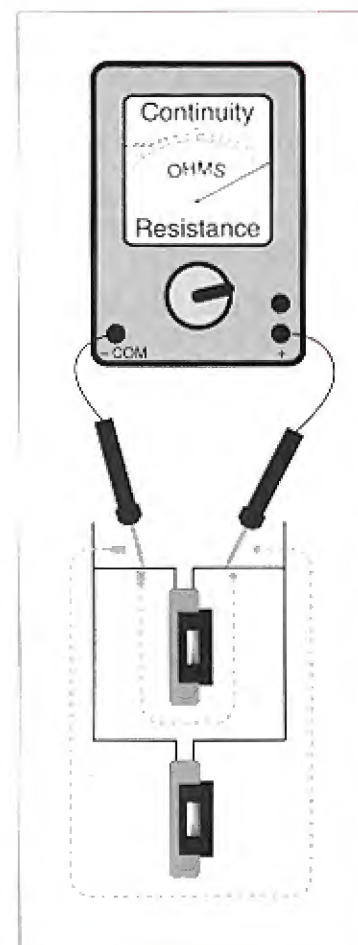


3. Unlike continuity, the resistance test is a quantitative test indicating how much the circuit will restrict the flow of electrons. Resistance is measured in units called Ohms. In this example, the coil for this electric strike is being tested.



4. Before measuring the resistance or continuity, the loop or load being measured must be removed from the power source and the rest of circuit.

5. Not separating the loop or load being measured may yield incorrect readings for resistance and continuity. Above is a parallel loop. Notice that there are two paths by which electrons can flow. Without separating the load from the loop, the meter will indicate the combined resistance of both paths or, following the alternate path, indicate that there is continuity regardless of the condition of the load being tested.



medeco[®]
HIGH SECURITY LOCKS

**The market leader
in locking systems for security,
safety, and control.**

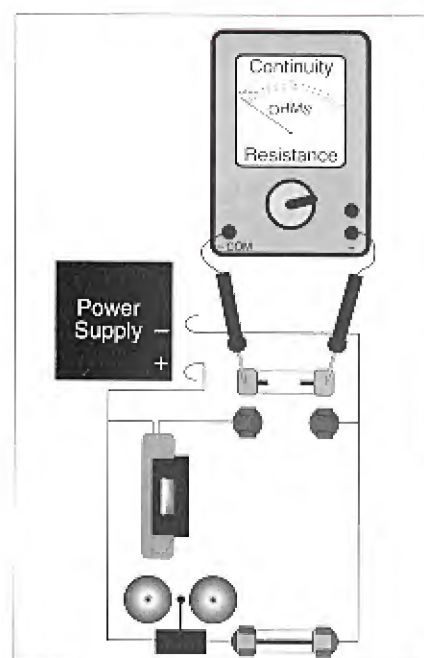
[Click here for more information](#)

For example, to test a fuse using the continuity/resistance measurement, the fuse must first be removed from the circuit. (See illustration 6.) Place a test probe on each end of the fuse. If there is a reading of continuity or resistance, then the fuse is still in tact. If there is no reading of resistance or continuity, the fuse is bad.

You will notice that unlike testing a fuse using the voltage test, the fuse is removed from both the power source and the loop. Should the fuse be left in the circuit, continuity/resistance may be indicated, not from the fuse, but from

another branch of the circuit. (See illustration 7.) This is why separating the tested circuit or load is so important for a proper reading.

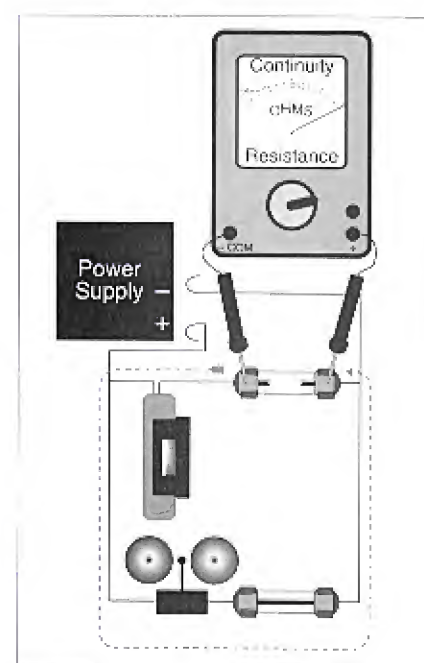
If making a resistance reading, it is necessary to zero out the meter before making measurements. To do this, pick the resistance range to be used and touch the ends of the test probes firmly together. The needle should jump up towards a zero indication. Then turning the Ohm Zero Adjust dial, set the needle dead on top of the Ohm Scale zero mark. If during the measuring it is necessary to change the range, it is



6. To measure the continuity of a fuse, switch or any part of a loop, it must first be removed from the circuit. Notice that the circuit has also been disconnected from the power source.

good practice to re-zero the meter.

To test a loop, first disconnect the loop from the power supply and place the test probes on each end of the circuit (start from the end nearest the power source and move out towards the end of the loop). If there are any switches in the loop, make sure that they are closed. The needle should



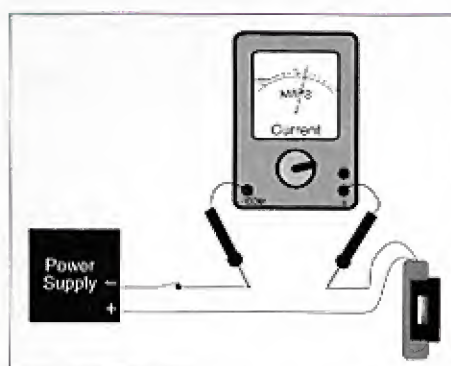
7. A bad fuse, load or loop, cannot be detected if there is an alternate route for the electrons to flow. This is why it is necessary to remove it from the rest of the circuit.

NATIONAL

AUTO LOCK SERVICE, INC.

National Auto Lock Service, Inc. offers a wide range of equipment and services for the Automotive Locksmith. From tools and hard to find key blanks to transponder programming, we can take the mystery out of car service. We accept credit card orders, and can ship COD. Contact us for the latest in automotive technology.

www.laserkey.com



8. The current reading is made with the power on and in series with the load. It does not matter what side of the load the meter is placed as long as polarity is observed.

move up and then stay steady on the scale or a continuity tone should sound.

Using resistance readings is common when looking for "swingers" on an alarm loop. This type of testing needs a bit more understanding on the nature of an alarm loop and will be covered in a later article.

Both resistance and continuity testing can be used to check a switch. Continuity will indicate the position of the switch - open or closed. Resistance testing indicates whether this switch is allowing enough current to flow to support the loads on the circuit. Resistance is often a good indicator of worn or corroded switch contacts. Should either of these problems exist, the resistance of the switch when closed will be much *higher* than the manufacturer's rating for that switch. Corrosion and worn contacts act just like the worn and corroded terminals of a battery cable - too much of either and the system doesn't operate.

Remember when reading resistance, that the higher the resistance, the lower the circuit's ability is to allow electricity to flow. Corroded and worn relay and switch contacts and corroded connections and terminals will yield a high degree of resistance. The lower the resistance the better electrons can flow through these components.

These same tests can be used to check the health of an electric lock's coil or solenoid. Again, using the continuity test will only indicate whether the coil is in tact or not. A coil that has been overheated may have burned and there may be a break in the coil, much like a fuse would burn. Or, overheating may cause it to burn just enough to melt the coil windings together creating a short. In this case a continuity test will indicate that

the coil is good, when, in fact, it is not.

A more accurate test for a coil or solenoid is resistance. All loads will have a rated resistance per the manufacturer's design. If the meter reading shows infinite resistance, the coil has been overheated and burned just like a fuse. On the other hand, a coil that overheated and burned just enough to create a short shows either a degree of resistance far below the manufacturer's specifications or no resistance at all.

Current Reading

The final VOM reading to cover is Current. Current, measured in amperes or amps, is the measurement of the flow of electricity. While "gallons per minute" is our way of measuring the flow of water through a dam, amps is the means of measuring the flow of electrons through a conductor.

While not used as frequently as voltage and continuity measurements, current measurements are made to determine the current draw of a series circuit as well as the specific loads in a parallel circuit, and to check the soundness of a power supply or battery to providing power to a load.

Making The Measurement

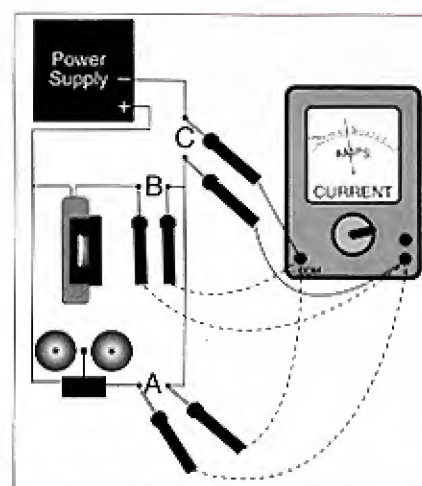
Unlike voltage, continuity and resistance which are measured across the load or circuit, current is measured in series with the circuit or load. Like voltage and unlike current and resistance, the current measurement is made with the power still connected and on. (See illustration 8.)

Remembering Kirchhoff's Current Law, the current in a series circuit is the same anyplace in the circuit. This means that the measurement can be taken anywhere within the circuit, provided that it is a series and not parallel circuit.

To make a current reading, set the meter's function and range. Then temporarily remove power and cut into the circuit at the most convenient spot. Many times this can be done at a connection or terminal. Place the meter in series with the load, paying close attention to the polarity. Apply power and read the meter.

In a parallel circuit the test probes are placed in series with the load(s) being tested. (See illustration 9.)

When testing a circuit for current, if the current is too low then either the power supply is too small or the



9. In a series circuit, the current is the same at all points within that circuit. In a parallel circuit, however, the current is equal to the sum of all the loads. For instance, measuring the current of the bell we place the meter in series at A in the illustration. To measure the current of the strike we place the meter in series with B. Adding A and B together will yield the current of the total circuit, C.

circuit's load resistance is too high.

If the current is too high, there is a lack of load resistance in the circuit (indication of a possible short) or the output voltage from the power source is too high. Neither are acceptable.



Make Sargent & Greenleaf's Comptronics locks your choice for electronic safe locking solutions.

[Click here for more information](#)

BEGINNER'S CORNER

The Weiser A500 Knob Set

The Beginner's Corner attempts to cover locksmith jobs that a new locksmith will encounter when he first starts out in business. Some common handle sets and locksets are Schlage, Kwikset, Weiser, Weslock plus some foreign made locks.



by
Eugene Gentry

In most areas, when a contractor develops a subdivision, he uses the same brand lockset on all the houses. One large contractor I know built over 10,000 houses in a thirty year period and used the Weiser knob lockset set



1. The Weiser A500 knob set.

on all of the doors. (See photograph 1.)

This article gives some information about pinning the Weiser knob lockset. The cylinder can be removed from the knob two different ways, the first by

removing the knob from the door, the second by using a Weiser tool.

For the first method, take out the two bolts at the rear cover plate, and pull out the rear knob, then the front knob that contains the cylinder case. To remove the cylinder, pull and hold out the tailpiece while simultaneously turning the plug left with a key to about the 10 o'clock position. (See photograph 2.) Pull the cylinder out of the door knob.

Method two is a better way to accomplish this. Without removing the knob a Weiser shim pick can be used. (See photograph 3.) This shim pick is available at your distributor

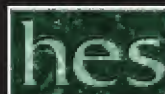


SCHWAB CORP.

Fire protection for your vital records.

**It's not safe unless
it's Schwab Safe.**

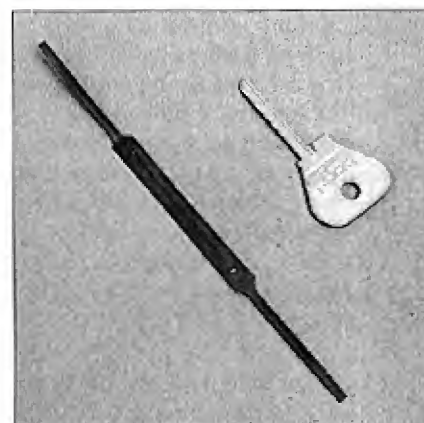
[Click here for more information](#)



2. While pulling on the longer, thin spindle, turn the key left to the 10 o'clock position.

and is listed in locksmith catalogs.

Insert the key in the keyway, then insert the shim pick on the right side of the key. (See photograph 4.) Push in to push back on the tail piece, then turn the key left to about the 10 o'clock position. Push in and turn until the cylinder comes out of the knob.



3. The Weiser shim pick.

If you do not have a key, then you can pick the lock. After it has been picked I use a Weiser key that has been cut down past the number 9 depth, then use the shim pick to remove the cylinder. The cut down key is used to



4. Inserting the Weiser shim pick.



5. A universal pinning kit (top) and a Weiser pinning kit.

turn and pull out the cylinder.

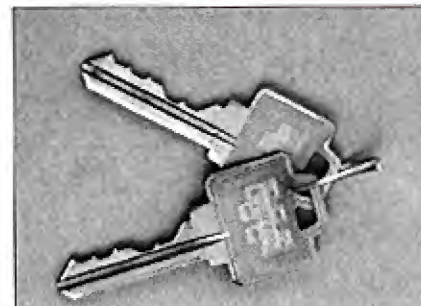
With the cylinder removed from the knob, remove the retaining clip at the rear of the plug and push it out with a plug follower. If it is an older lock, it is a good idea to dump out and check all the pins and springs.

You may use a Weiser Pinning kit, part number 1420, or you may prefer a universal pinning kit. (See photograph 5.) The Weiser pinning kit is handy as it has pins in compartments for each depth, whereas the universal kit has pins for all type locks. A chart on the universal lid gives the pin sizes for the Weiser lock.

The key blank for this five-pin Weiser is an Ilco 1054WB or Taylor 54WB. The key we are using for this pinning is precut with the bitting (starting from bow) 67343. (See photograph 6.).

Clean the plug and cylinder with a solvent and place the plug in a holder. Put in the bottom pins and check to see that they line up at the shearline when the key is inserted. Now put in top pins. These are all the same size, .186" from a .005" increment pinning kit. Finally replace the springs and put on a new cap. Replace a new retaining clip on the rear of the plug. Try the key to insure that it is working properly.


Now place the cylinder back in the



6. Pinning up the cylinder to these pre-cut keys.

knob and use the shim to push back on the tailpiece or pull out on the tail piece if it is out of the door. Turn left to the 10 o'clock position, when the cylinder snaps into place turn right and remove the key.

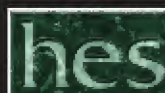
It is a good idea to use all new parts as the retainer clip and cap become worn and misshapen.

Weiser Lock has been in business since 1904. They manufacture a variety of residential lock sets, knob sets, lever sets, and handle sets. See your local distributor for information, or call 800-688-5625 for a catalog. 

SRI
SECURITY
RESOURCES INC.

SRI and Steve Young
are working together
to bring you the best
in locksmith tools
and supplies.

[Click here for more information](#)



*Cover
Feature*

THE FRONT LINE OF DEFENSE

"For the commercial and industrial customer, the first line of defense against burglary is the hardware on the doors."

by Steve Gebbia, CML

For the commercial and industrial customer, the first line of defense against burglary is the hardware on the doors. This commercial hardware consists of a wide variety of locks and locking systems. Many of these are heavy duty versions of residential locks, but there are other locks which are found only in commercial applications.

Door hardware is available in three levels of durability and strength of construction. Grade 3 hardware is the lightest and is generally used in the residential market. These are designed for low traffic areas where abuse would be a minimum.

Grade 2 hardware is designed for heavy duty residential or light duty commercial applications. These are generally physically heavier than the Grade 3 locks and can tolerate heavier usage and a fair amount of abuse. Grade 2 locks would be used in areas which get a moderate amount of traffic.

Grade 1 hardware is the heaviest and most tolerant to abuse. Schools, churches, and large institutional and industrial sites generally use these locks because of their high durability. These will generally tolerate very high levels of both traffic and abuse and still work properly for many years. Despite their strength, even Grade 1 hardware will periodically need repair.

Most of the hardware found in commercial applications will be Grade 1 or Grade 2. Servicing and installing these products is really not that difficult. Some replacement parts, a few special tools, and your troubleshooting skills are all that you will need.

Some of the more common types of commercial hardware found are: Exit Hardware, Full Mortise Locks, Unit Locks, Key-in-Knob and Key-in-Lever Locks, and Glass Door

Hardware. There are, of course, other types of commercial hardware, but these are what you will find in the majority of commercial applications.

Exit Hardware includes both panic devices and alarmed exit locks. Panic devices, sometimes referred to as 'crash bars,' are used in medium and high traffic areas to allow full latching of the door without hindering egress (egress refers to the act of exiting a building or a part of a building). The ease of egress afforded by panic devices has made them the product of choice for areas where people congregate. Schools, churches, meeting halls, and medium and large institutional and industrial sites are some of the places you will find them.

Panic hardware is available in rim or mortise mounting styles. It is also available in a crossbar type or touchbar type. The most noticeable is the crossbar type. For many years, these were the only type of exit device available. They consist of a round or oval 'crossbar' which is held away from the surface of the door by two lever arms and device cases.

The other type of exit device is the touchbar design. This device does not project off of the door, but actually touches the door across the full width of the device.

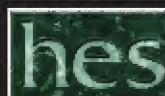
The advantage of the touchbar design is that it is more aesthetically pleasing, generally slimmer in design, and the area which you would depress to exit is usually larger than that of the crossbar design. On the other hand, and with exceptions, the crossbar type device is almost always made of heavier materials and can usually withstand more abuse than the touchbar devices.

Both touchable and crossbar type devices allow you a variety of latching options. These include single point, surface



1. The first line of defense is critical in commercial, industrial and institutional settings. The most common are the exit devices (above), mortise locks, key-in-knob (or lever) sets, unit locks and aluminum door hardware. Accommodating the door with the proper grade and function is essential in maintaining security, convenience and meeting life-safety and ADA standards.

Continued on page 34



Continued from page 32

mount vertical rod, concealed mount vertical rod, and three point latching. When two vertical rod devices are applied to a pair of doors, each door can open and close independently of the other.

There are several functions of exterior trim found on exit devices. The basic functions you will find are: Thumb Push (TP) (Thumbpiece locked or unlocked by key), Night Latch (NL) (always locked, key withdraws latch but does not unlock device), Key-in-knob or key-in-lever (KIK or KIL) (Key locks or unlocks knob or lever), and exit only (EO) (no outside key control). In addition, panic exit device are equipped with a 'dogging' mechanism. This allows the crossbar or touchbar to be held in the depressed position to reduce wear and allow free access from outside. A touchbar device will have one dogging mechanism while a crossbar device will have one for the active case and one for the hinge case. When dogging open a crossbar type device, always dog down both lock cases to prevent wear and extend the life of the device.

When servicing or replacing commercial hardware, always remember that any hardware applied to a door must carry the same fire rating as the door. Using hardware which is not fire rated defeats the purpose of the fire door and can be a serious fire and life-safety hazard. Exit hardware which is fire rated is referred to as "Fire Exit Hardware" or as a "Fire Exit Device." Exit devices which are not fire rated are referred to a "Panic Exit Devices." One major difference between fire rated and non fire rated hardware is that fire rated hardware must always latch. You will never find a dogging assembly on a fire rated device. Fire rated devices will also have a deadlatching pin alongside the latch to ensure positive latching.

Alarmed exit locks are designed to secure a door, often with a deadbolt, and still allow emergency egress. Although they can be found in many different types of businesses, the application is almost always the same. The purpose of this type of lock is to prevent unauthorized opening of an exit door. This helps prevent employee and customer theft through emergency exit doors. Even though the door is locked, in the event of emergency, egress is granted by depressing a full width panic bar or shorter paddle type bar. Depressing the panic bar or paddle will unlock the door and sound an alarm. The alarm can usually be silenced only by key. These devices are available with a deadbolt, a latch, or both. The deadbolt is secure, but when the alarm is triggered, the door will remain unlocked until someone relocks it by key. Alarmed locks equipped with a latch will relock automatically, but are not as secure as those with a deadbolt. One manufacturer makes an alarmed exit lock with both a bolt and a latch. With this unit, if the alarm is triggered, the bolt will be withdrawn, allowing egress, but the door will relatch - retaining some degree of security.

Another common lock found in commercial and industrial applications is the mortise lock. These are available with escutcheon or rosette type trim. Various knob and lever designs are available for these locks. The most secure mortise locks are Entrance function locks. These have a deadbolt, a latchbolt, an auxiliary deadlatching arm, and a night works mechanism. The night works of a mortise lock allows the exterior trim to remain locked while the deadbolt

and the interior trim remain unlocked. Some mortise locks also have a panic exit feature which allows the inside knob or lever to unlock the deadbolt, allowing one motion to exit. This is a very important feature for fire safety. Mortise locks can also be found with latchbolt only, latchbolt and auxiliary deadlatch, deadbolt only, and latchbolt and deadbolt only (without auxiliary deadlatch).


To service mortise locks will generally require a spanner type wrench to remove the knob or lever trim. These are available from the various manufacturers. The weakest part of a mortise lock is the threaded spindle which connects the knobs or levers to the lock body. These spindles are produced by both the lock manufacturer and a variety of after market manufacturers.

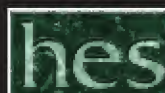
One of the most unusual locks you will encounter is the unit lock. These are very sturdy little locks which will tolerate a great deal of abuse and very heavy traffic. This lock is basically a small mortise lock. However, instead of fitting into a mortised cavity in the edge of the door, this lock slides into a U-shaped cut-out at the edge of the door. The lock body is the full width of the door. These can be identified by the large escutcheon plates which extend all the way to the edge of the door. They are usually held to the door by three screws which pass through the inside trim plate. Removing these screws and then pulling the lock slightly away from the door will allow it to slide off the edge of the door. Jamb disassembly of these locks can get a bit intense, but this type of service is not usually required. The knob or lever trim is held in place by a half-moon retainer. This retainer is usually found under a spring wire retaining ring. When servicing unit locks with lever handles, be careful not to stretch the lever return springs.

Probably the most common commercial hardware is found on glass doors. Deadbolts, deadlatches, and exit devices can all be found on glass doors. There are many manufacturers of deadbolts and deadlatches for these doors, but they are all very similar. The standard deadbolt has a flip-up type bolt made of laminated steel and uses a mortise type cylinder. For applications with narrow depth of frame, a shorter flip up bolt is available. For added security against crowbar attacks, hook type flip-up deadbolts are used. Deadlatches for these doors can be activated from inside with either a lever handle or a paddle type handle. The paddle handle is much more durable and can be easily serviced. This more than offsets their added initial cost.

With the enacting of the Americans with Disabilities Act (ADA), you will be finding more and more key-in-lever locks. The best of these will have a separate spring cage for each lever. This will help prevent the levers from sagging.

Most commercial hardware can be released remotely by electric strike, but be aware that these locks generally have larger latches. In order to properly capture these latches, you will usually have to use heavy duty electric strikes of detention equipment quality.

For those willing to take the step and learn to service these locks, the rewards are great. The first line of defense truly is the hardware on the doors. Will you be left behind, or will you join in the defense? 



*Cover
Feature*

HARDWARE FOR LIFE SAFETY & SECURITY

"Six hours later, a building engineer went onto the roof to make repairs to one of the air units and found the disoriented Maria huddled in the shade."

by Terri Eagler

Maria opened the third floor door and climbed the high, dark stairwell to the door entering out onto the roof. It was hard, but with a little effort the rusted door opened and she stepped out onto the roof, closing it locked behind her.

Confused, Maria wandered around the roof top, protecting her naked body from the hot sun by following the shade of the air units towering over her frail body. Her bare feet burned on the black tar roof.

On the third floor, nursing home staff, finally realizing that Maria was missing, began to search frantically. After several hours of doing complete building searches, the police were informed. Maria could hear their sirens as they pulled into and out of the parking lot. She could hear the commands given to the dog team, brought in to search the hospital grounds. Later she listened as they reluctantly packed up and left.

Six hours later, a building engineer went onto the roof to make repairs to one of the air units and found the disoriented Maria huddled in the shade.

Maria suffers from Alzheimer's. Today she was lucky.

Delayed exit devices were conceived to help resolve the dilemma between life safety and security. While building codes mandate the use of exit devices to enable the occupants of a building to escape quickly and surely in a fire or other emergency, their misuse or abuse can breach security in some applications. The back door of a store, which is locked from the outside, can be propped open from the inside to allow merchandise to be stolen. A nursing home resident can wander out of an unlocked exit and into danger, but the door can't be locked or it would prevent emergency egress. In many cases, there is a need to secure the door from both sides, which conflicts with building and fire code requirements for safe egress.

The answer is often a controlled exit device or system that stays locked for a fixed time, usually 15 seconds, while sounding an alarm before it releases to allow egress. The delay and alarm warning allow time to respond to an unauthorized door opening, while the length of the delay is short enough to prevent someone from being trapped in a locked area. In a true emergency, the delay is bypassed and the device unlocks immediately, through a tie-in with the building's smoke alarm, fire alarm or sprinkler system.

Delayed exit devices and systems are described under Special Locking Arrangements in NFPA 101, Life Safety Code. Some codes list them as delayed egress systems. The 1991 UL mechanical equipment book states, "The

assemblies covered by this listing are intended to be mounted on door frames with outward swinging exit doors for the purpose of locking such doors against unauthorized egress." Such an arrangement augments the requirement for an exit device, rather than replacing it.

Applying no more than 15 pounds of pressure against the device will actuate the system, and 15 seconds later, a person will be able to open the door. If the power fails or the fire alarm is triggered, however, the system must not impede egress.

These systems do not require depressing for the full 15 seconds to unlock the door. If the system has no nuisance delay, a momentary touch starts the process, with an optional nuisance delay, the device must be pushed for 2 seconds, after which the circuit will latch in and release at the end of 13 additional seconds. This prevents the device from being triggered if someone accidentally bumps it. In addition to the standard delay of 15 seconds, occasionally, delays of 30 seconds are used, but only if permitted by the local authority having jurisdiction.

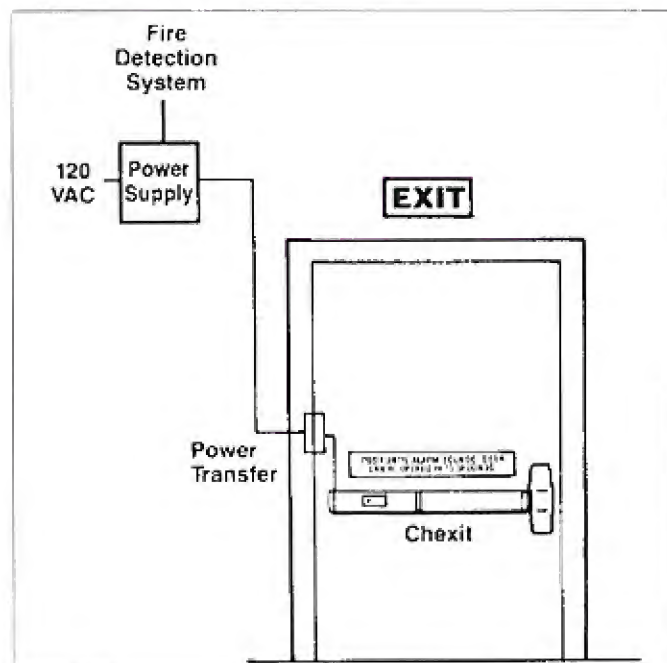
Two Sides To Nursing Home Safety

In a nursing home or similar custodial care facility, the security of residents is interwoven with their safety, as well as that of the staff. For those impaired by age or infirmity, safety demands exit controls to keep them from wandering out into life-threatening weather extremes or traffic hazards. Yet the doors cannot remain locked in case of fire or other emergency. The NFPA 101 Life Safety Code recognizes this twofold danger and the need to maintain the purpose of panic hardware in 5-2.1.5.5: "No lock, padlock, hasp, bar, chain or other device or combination thereof shall be installed or maintained on or in connection with any door on which panic device prevents or is intended to prevent the free use of the door for purposes of egress."

To protect residents of these care facilities against their own limitations, however, NFPA allows an exception, "as otherwise provided in 5-2.1.6." If the building is protected throughout by an approved supervised automatic fire detection or sprinkler system, with certain limitations, locking devices are permitted. They must unlock upon actuation of the automatic sprinkler or fire detection system or upon loss of power. (See illustration 1.) Further, they must initiate an irreversible unlocking process, usually within 15 seconds, when a specified force is applied to the device for not more than 3 seconds. Automatic relocking of such doors is not permitted. Other than the 15 second delay, the exit device functions conventionally. Review both NFPA and your local code requirements carefully before installing

Continued on page 38

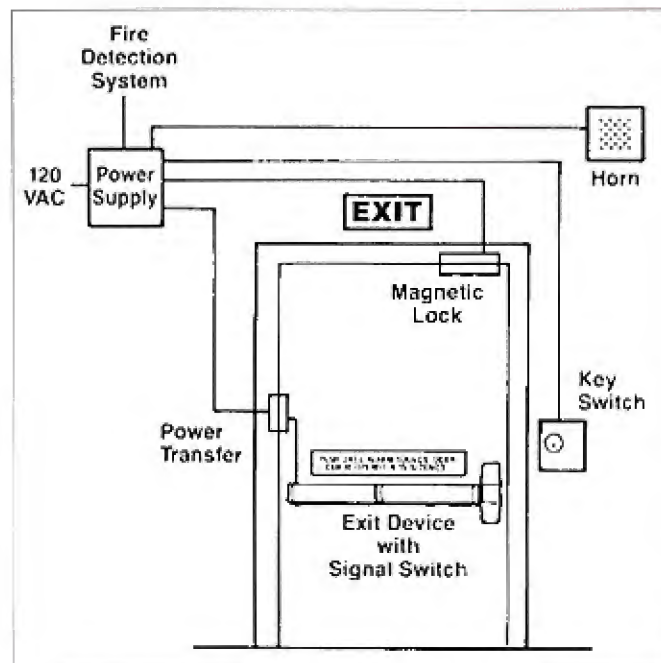
Continued from page 36



1. Delayed egress systems can accommodate both life safety and security needs. Connecting the unit to the fire detection system bypasses the 15 second delay and opens the door immediately.

any delayed exit system to be sure of meeting all mandated life safety needs.

UL-listed controlled exit devices designed for fire exit applications reduce the number of components and hardware associated with an opening, drastically lowering installation cost



2. Connecting a delayed egress system to an exit door can help prevent unauthorized egress. In this case, a horn is attached to notify security personnel. A keyswitch is added to shunt the system when it is necessary to leave the door open.

and maintenance requirements. Internal components on one such device enable it to meet the NFPA 101 "Special Locking Requirement." Features include a request-to-exit switch, auxiliary locking, timing mechanism, keyswitch and horn, all requiring no additional wire run, conduit or wire boxes.

Additional inputs and outputs accommodate remote monitoring and control.

Delayed Exit Devices Stop Thefts At Department Store

A leading discount department store located in a Milwaukee-area shopping center had experienced repeated broad-daylight thefts of microwave ovens during its first two years in operation. A pair of fire doors on one wall of the store leads directly to the outside of the mall, where only the width of a sidewalk separates it from the roadway.

According to the store's assistant manager, a thief would put one of the appliances in a cart or simply carry it to the doors, which were along the same wall as the product display. With an accomplice waiting in a car outside, he would then push open the emergency exit device, put the microwave in the car's trunk and take off. Although the exit was alarmed, the whole process took only seconds, and security personnel were unable to get to the exit in time to prevent the theft.

Because the fire exit was required by building codes, store management faced a dilemma. The doorway's remote location made it impractical to post a guard, and



ASP Covers the World of Auto Locks

[Click here for more information](#)

even a remote TV monitor would not have given enough warning before the thief was gone. The solution was to install delayed access devices and magnetic locks. (See illustration 2.) This allows emergency egress but provides a 15 second delay in egress and sounds an alarm, bringing unwanted attention to a potential thief and alerting store security. In addition, a sign warning of the delay is posted prominently on the doors, deterring anyone from using them except in case of emergency.

In the two years since the installation, on the few occasions when someone has tried to take stolen goods out through the doors, store security guards responding to the alarm found an unattended cart containing a microwave oven. The would-be thief had been scared off by the alarm and a door that couldn't be opened immediately. The system is tied into the building fire alarm system, so the devices will be released if the fire alarm or sprinkler systems are actuated in an emergency. When necessary to block the doors open, the manager can disarm the device temporarily with an adjacent keyswitch.

Good Show For Controlled Exit Devices At Movie Theater

At a multi-screen movie theater in Kansas City, Missouri controlled exit devices prevent patrons from disrupting shows by exiting through adjacent auditoriums. The Ward Parkway Cinema, located within the Ward Parkway Mall, is a 12-screen facility with auditoriums ranging from 150 to 300 seats. Prior to opening, the theater faced a problem of emergency egress capacity. The mall configuration required exits to open onto a walkway along the exterior of the mall's second level, but the width of the walkway was insufficient for the number of people it would have had to carry in an emergency. The answer was a code exception that allows people from 3 of the 12 auditoriums to exit through the front of the adjacent facility instead of onto the walkway.

However, the location of these emergency exits, along the front side walls of the auditoriums, raised another problem. William R. Timper, regional director of design and development for American Multi-Cinema, Inc., which owns the theater explains, "When a movie is finished, some people will try to leave through the emergency door. This would interrupt the showing in the next auditorium." A standard exit device would not have prevented this distraction. Locking the door would have stopped it but also would have violated building codes by preventing emergency egress.



3. Von Duprin Chexit® controlled exit device at remodeled American Eagle commuter terminal provides alarmed exit control to prevent unauthorized egress to the ramp. Gate agent can disarm alarm temporarily with key switch to allow use of door. Red LED display on exit device shows status.

Simply alarming the door alone would have increased the disruption with a combination of light and noise every time someone opened it. To solve the problem, the architect recommended installing controlled exit devices on each of the doors that connect two auditoriums.

Devices Play A Role In Airport Security

Delayed exit devices are being used at many airports, to provide gate control and to keep unauthorized personnel out of secured areas, generally as part of an overall security system.

At the international gates in the remodeled American Airlines International Departure and Arrivals Facility, located within Terminal 2E at Dallas/Fort Worth (DFW) International Airport, the doors are equipped with a Chexit® controlled exit device. The wide variety of applications in the terminal called for access control products that could either stand alone or be interconnected with other doors. (See photograph 3.)

The system accommodates different levels of security and staff responsibility, with their varying needs for access to the operations. One key cylinder is used in the controlled exit devices, while a different one is used in the wall-mounted keyswitch panels, providing control over who can change the operation at the opening. A gate agent or security officer can disarm the device temporarily to use the doorway, with a separate key switch on the adjacent wall, but only a supervisor can disarm the device and change its operation, using a keyswitch.

At the American Eagle commuter gate area, the main security problem is to keep people off the ramp and away from the airplanes until their flight is called. Here a delayed egress device guards the door and sends an alarm if anyone opens it, unless the gate agent temporarily disarms the device with the wall-mounted keyswitch.

LIFE SAFETY WITH SECURITY

When dealing with life safety and security issues, it shouldn't be necessary to give one up to get the other. Today's applications are being met with an integration of both mechanical and electronic technologies. The locksmith, if prepared, can meet the needs of his customers and add another line to his profits.

The author is the Marketing Services Manager for Von Duprin, Inc., part of Worldwide Ingersoll-Rand.





WHAT HAVE YOU GOT TO LOSE?

"Instituting absolute key control in your business means you would be about 70 percent of the way to eliminating loss through pilferage in your firm."

by Jake Jakubowski

If you were able to institute absolute key control in your business, you would be about 70 percent of the way to eliminating loss in your firm. Chronically, businesses throughout America find pilferage and theft to be committed by an employee, a former employee, or the colleague of an employee that has acquired or been given access to an unauthorized key.

The methods used by these people to acquire keys are as varied as the reasons they devise to justify their need to have the key in the first place. Most commonly, a former employee simply did not surrender the keys they held at the time they were terminated. Beyond that, one employee "loans" their key to another who decides to have a duplicate made "just in case."

Compounding the problem (especially in smaller companies) is the fact that no one is "tracking" the keys that have been issued. Additionally, there are far too few cases where the "need" for a key is actively reviewed. Most often, in those situations, keys are randomly distributed to whomever feels they should have one.

All of which adds up to lack of key control. Lack of key control results in lost merchandise, equipment, money, records and peace of mind. However, the foregoing is preventable, provided the first step: a viable, trackable and realistic key control program is implemented and followed.

The first consideration (aside from choosing the actual key control system) in developing a comprehensive and workable key control program is to determine which employees truly need to carry keys to the building. Does the warehouse supervisor need to carry a Master Key, or even a key to the main entrance. Does the sales manager "need" a key that will permit entry to the warehouse or production? Why does the bookkeeper need to have a key to the truck maintenance facility?

Realistic key control begins with controlling the number of people that carry keys within a given environment. It is enhanced by restricting the access of those people carrying keys to specific areas of the property. It is fine tuned by implementing a system that not only makes the unauthorized duplication of keys difficult, but nearly impossible.

If, as the basis of your key control program, you utilize any common and unrestricted keyway such as Kwikset, Schlage, Sargent, Corbin, Russwin, Falcon, Wieser or Dexter, you absolutely cannot enforce any prohibition against the unauthorized duplication of the keys you issue! Why? Because the blanks are too readily available from too many sources. Even stamping the key "Do Not Duplicate" offers no assurance

that someone, somewhere, will not duplicate the key.

Consequently, the only plausible option to be reasonably certain that your key control program is going to work, is to key into one of the restricted or patented systems available. These systems are more expensive than "conventional" keying systems but, they do offer you a much higher level of security. The following are brief overviews of some of the systems available to you.

Abloy:

These locks use rotating discs and a specially designed keyblanks. Abloy keys are sold only to Abloy dealers and are not available to non-dealers or service centers. A specific type of machine (that is sold only by Abloy) is required to make the four angled cuts necessary to generate a working key. Utilizing various levels of key control from dealer to factory restricted and factory duplication only, it would be extremely difficult for someone to have an unauthorized Abloy key made. Abloy's answer to key control is in its unique keyway, rotating discs and a vigorously administered dealer program.

Assa:

The "heart" of the ASSA system is an unusual sidebar configuration. Since the sidebar and keyway designs are restricted on a geographical basis, finding another shop within a specific area that could duplicate an ASSA key would be nearly impossible unless that shop willfully violated its contract with ASSA. For an even higher level of security, ASSA offers factory controlled systems as well as dealer controlled systems. Since all ASSA keyway assignments are computer generated and tracked, there is very little possibility of finding "duplicate" keyways in a given area.

Emhart (Corbin Russwin):

Angled key cuts, special keyblanks and interlocking pins are only a part of the design that makes up the Emhart High Security cylinders. Emhart lays claim to being the first "high security" system that would allow integration of the high security cylinders with certain existing cylinders in a facility. This feature permits the use of the Emhart keys that open not only the exterior doors but also operate certain interior locks, without the "normal" keys being able to operate the Emhart cylinders. Emhart currently offers two restricted keyways (with four new restricted being offered in the very near future).

Medeco:

Incorporating angled key cuts, multi-level key control, restricted and patented keyways and aggressive marketing, Medeco has become almost synonymous with key control. Their Biaxial® system is UL listed, and the new Patriot program offers the customer virtually whatever degree of

restriction and control they require. Medeco cylinders can be retrofitted to many existing locks and knob sets, but does not integrate with existing keying systems. This, of course, is one reason Medeco has the security reputation that it does.

Sargent/Keso:

Although Sargent offers various restricted keyway programs with varying degrees of field service and rekeying options, their ultimate key control program is the Keso. Keso keys are "dimple" cut to accept pins located in three rows from three intersecting axis. Each computer generated Keso system is a proprietary system, but all keys and cylinder rekeying must be done by the factory. Although there are machines on the market that are capable of duplicating a Keso key, Sargent does not sell uncombined blanks. Keso cylinders are available to retro-fit most Sargent mortise cylinders, some key-in-knob cylinders and certain Sargent panic devices. Because all Keso "work" is done under stringent factory control, security is virtually guaranteed.

Schlage/Primus

Schlage's Primus system meets the challenge of key control by offering a patented "Side-Bit Milling" which is rigidly factory controlled. After the factory cuts the side-bit milling, specific milling patterns are delivered to specific Primus Centers for duplication of the "conventional" pinning cuts. Combining "finger pins" to operate the sidebar, and conventional pins to interface with the sidebar, a "dual locking system" has been created. This feature also allows integration of the Primus system with other Schlage (non-Primus keyways) locks which means that complete retro-fitting is not necessary.

Yale:

Yale combines five rotating discs, a sidebar and a key that is milled on the bottom of the blade to align the rotating discs which positions the sidebar. Conventional cuts on the top of the blade bring the pins to the proper shear line to allow the cylinder to turn. At it's highest security level, all cylinders are factory assembled, and all keys are factory cut. With their security cylinders Yale also provides the option of integrating with existing Yale hardware. That option makes it possible to use the patented system in various areas, while utilizing restricted, and even standard, cylinders in others.


Vanguard/Winkhaus:

The Winkhaus VS locks contain 13 tumblers. Five of these are standard tumblers and two sets of four "nest" into dimple cuts in the sides of the key. Key control is accomplished through a dual system of factory pre-cut dimple cuts and specially profiled keyblanks for different geographical regions. Key duplication can be accomplished on a standard key cutting machine. However, since the blanks are sold only to specific dealers in diverse geographical locations, unauthorized duplication of the keys would be difficult. Winkhaus cylinders can be retro-fit to a variety of existing hardware.

One benefit common to many of the high security cylinder manufacturers listed above is the fact that they have security cylinders that not only fit mortise or key-in-knob locks, but will also fit padlocks, interchangeable core locks, desks locks and switch locks. Such a wide product application potential would allow you to realize a complete one keyway key control system that encompasses practically every lock in your facility.

The next equation necessary to your key control program is the tracking and storage of all the keys in the system. This includes all issued keys, as well as all spares. Central to the tracking process is a "Key Log" that identifies each key and who has possession of it. Next is a signature card with the name of the assignee of each key.

Secure key storage can be accomplished by utilizing any one of a number of styles of key storage cabinets, boxes, or file cabinet boards. Companies such as HPC, Buddy Products and Key Systems all offer key storage equipment.

Finally, you need to be prepared to take immediate action if a master key, or other high priority key is lost and not recovered. It doesn't matter if the key was not turned in by a terminated or retiring employee, or simply disappeared. Whatever the reason for the missing key, you need to have a damage containment program ready. This might consist of nothing more than rekeying one or two doors if the key was a limited access key. Or, it could require the rekeying of the entire property if the key was a "Grand Master". 



D on't panic!
We have Security
E xit D evices.

[Click here for more information](#)

*Cover
Feature*

THE LOCKSMITH AND BUILDERS HARDWARE

"While it has been a profitable addition to business, let me emphasize, that a builders hardware operation is not for everyone."

by Don Probasco

From time to time someone asks me how we decided to get involved in the builders hardware portion of our business. As with most businesses we were trying to find a way to add to our income without a very large extra outlay of cash.

Sara and I were visiting her brother in Lafayette, Indiana, during Thanksgiving of 1990. Quite often while traveling, I look at the yellow pages for information on the local locksmiths. I copied the names and addresses of some in Lafayette and on the Friday following Thanksgiving we visited with Michael Gibson of Maulhaupt's, Inc. He was very kind and considerate and showed us Maulhaupt's entire operation.

According to the yellow pages ad, Maulhaupt's had been in operation some 110 years. It had begun as a bicycle shop and lock shop in a very small building. The half block building now housing Maulhaupt's is on that same location in downtown Lafayette. The company is now being run by fourth generation members of the same family. They still sell and service bicycles as well as having an alarm business, complete locksmith business, and large showroom for all their lines of architectural hardware plus planning and consulting.

After we returned home, Sara and I talked about how nice that business was and how great it would be if we could eventually do something like it. At that point it was just a pleasant dream.

In February of 1991, while attending the Texas Locksmith Association in Houston, I visited with Kim Bower, CML, owner of East Texas Safe & Lock of Kilgore, Texas. I had met Kim some nine years before while he was employed by James Deckelman of Deckelman's Safe and Lock in Lubbock, Texas. James also owned Deckelman's Wholesale Supply, where I purchased some of my inventory.



1. Done correctly, adding builders hardware to your business can be a profitable adventure



2. Making a go at builders hardware (from left) Dove DeGroll, Sara Probasco and Don Probasco.

When Kim and I renewed acquaintances and discussed our respective businesses, he told me that he had added a builders hardware section to his business. He had been a salesman for a door and window company before entering the locksmith trade. Because of his knowledge of this area, he began to contact builders and contractors about supplying them with windows and doors during a slow period with his locksmith business. This idea eventually expanded into the separate business of Enerlock Architectural Openings. It has been a profitable addition to his original business ever since.

Let me emphasize, that a builders hardware operation is not for everyone. First, if you are in a large town or city, there are probably one or more companies that specialize in builders hardware. If they are doing their job properly, it may be extremely hard for a newcomer to break into the market.

If you are in a small town, there is probably not enough business to justify expanding in this direction. We looked at our town of Uvalde, Texas, with a population of about 15,000. We are about 90 miles west of San Antonio. Most of the local people, individuals and contractors, were buying their builders hardware from the local hardware stores, if the stores had what they wanted, or they were driving to San Antonio and buying from one of the builders hardware businesses there. We wanted to give prospective customers living south and west of Uvalde a closer choice than San Antonio and "catch them on the way through town."

Knowing that people's habits are hard to change, we decided to get into builders hardware in a small way and let sales tell us if there was enough business to warrant expansion. We set aside a display area and mounted a number of really nice looking locks on a velvet covered wall. We also improved our lock mount displays. All the local builders were contacted, and their business was solicited. To

Continued on page 44

Continued from page 42



3. Selling builders hardware means...

deal with them, our prices had to be competitive with those of San Antonio. (We learned local service doesn't always mean much to them unless they are in a bind for something.)

We also contacted the local architectural firm and let them know what we were doing. We were well received and have gotten some business as a result. Again, contacts, contacts, contacts. It takes a lot of tree-shaking to get the fruit to fall. We had an Open House for builders. Three showed up. We had Open House for our local retail customers and had a good response. Many of them commented that usually they just rushed in to have a key

made and had not taken time to look around. They were impressed and began to remember us when thinking of beautiful quality hardware.

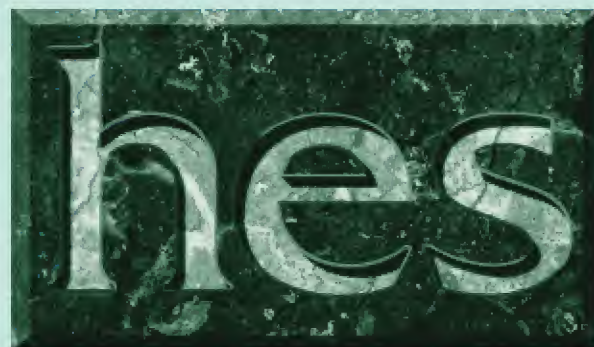
Another facet of builders hardware is bidding contracts. Be prepared to sharpen your pencil and sell at a very low profit margin. This can be very difficult if you do not buy directly from the manufacturer. Some manufacturers require a minimum opening order after they have qualified you through their local sales representative. This opening order requirement can be quite large. Furthermore, most manufacturers require a minimum amount of purchases each year to retain the best discounts.



4. ...properly displaying the goods.

As a result of our minimums, we are able to sell to other locksmiths in our general area, at very good discounts to them, in quantities they find comfortable. We have gradually increased our inventory in the areas that sell best. This requires keeping good records of inventory purchases and sales. We also seek business and offer discounts to schools and colleges in the area. Sometimes this is done on a bid basis, if the quantity requires them to do so, or it may just be done on a purchase order. We go out of our way to show their maintenance personnel what we have, what we can get, and to let them know we want the business. They, in turn, remember that we have the merchandise and ask their purchasing agent to buy from us. You can catch a lot more flies with honey than with vinegar. If you want the business, be prepared to spend the time explaining the function of your merchandise and selling the customer on the fact that he should trade with you.

An unexpected extra is area contractors who buy from us, often send their customers by to select the hardware, creating more customer traffic in our store. As a result, we're seeing an increase in the locksmith portion of our business as well.



**To be a World Leader You
Need Quality Products,
Innovative Technology and
Strong Partners.**

[Click here for more information](#)

PERSONAL SECURITY: A HIGH-PROFIT OPPORTUNITY

"Personal security products are highly profitable, 'impulse buy' items that, with a little effort, can produce very profitable add-on sales."

by Marsha Stewart

What's number one on America's worry list? The Economy? No. Unemployment? The Budget Deficit? Family Values? Nuclear War? No, it's none of these.

"What is the main problem facing the country today?" was the question posed in a survey just released by Time/CNN. And the number one answer: Crime. This represents a sweeping change in public opinion. Of those polled 19 percent said crime was the country's main problem, compared to four percent just a year ago.

Politicians on the state and national levels are rushing to pass laws featuring the "Three strikes and you're out" concept - life imprisonment for anyone convicted of three serious crimes - and the Time/CNN poll found more than four out of five Americans are in favor of it.

People are concerned about personal security and violent crime like never before. What does all this mean for the security specialist? It means that, for many people, the top quality locks, alarms and access controls we install on their homes, cars and businesses don't complete the security picture. There is growing demand for personal security products, and it makes sense for the security specialist to be the one to promote and sell those products.

These are highly profitable, "impulse buy" items. With a little effort, these products can produce very profitable add-on sales. The most common personal security products include personal alarms, chemical sprays, and "stun guns."

Personal alarms come in several styles, and can be attached to a purse, belt or briefcase. They work on the same principle as a car or building alarm: criminals don't want to draw attention to themselves, and the loud siren-like sound can be startling and

disorienting. Personal alarms range from 90 to 130 decibels depending on manufacturer. They can be as small as a lipstick case or pen. Some even come disguised as "beepers" like the ones so many people routinely carry or wear on a belt. Most are activated either by pulling a pin or flipping a "panic switch."

"No security product works in all situations, but a reliable, high decibel personal alarm is a great first line of defense," according to Fred Silpa of WeTip, the nation's oldest and largest non-profit crime prevention organization.

Prices for personal alarms range from \$20 to \$60 retail, and they require no special training or licensing.

Self-defense sprays are another popular type of personal security product. There are two basic types of self-defense sprays: Pepper sprays and tear gas or Mace. Prices for the small canisters (again, about the size of a lipstick case or pen) range from \$10 to \$30 retail.

Pepper spray, or oleoresin capicum (OC), is an inflammatory agent derived from cayenne peppers. It attacks the eyes, nose and throat, causing the eyes to dilate and the nose and throat to constrict. The effect on the attacker is temporary "blindness" and difficulty breathing. Because it is an inflammatory and not an irritant, OC is said to be effective against those who may be oblivious to pain, such as drunks or drug abusers.

Tear gas sprays come in two formulas: CS and CN (Mace). They are highly potent chemical irritants, and work by causing severe irritation to the eyes and breathing passages.

Various laws govern the sale and use of self-defense sprays. Some may require special training or licensing. These regulations are often

determined by local governments. When selling these products, be sure you know and follow the statute for your area.

A "stun gun" emits a high DC voltage, low amperage electrical charge between two metal poles. An attacker can be temporarily incapacitated by touching him with the two poles. This sends a 40,000 to 150,000 volt charge through the attacker's body, causing muscle cramping and pain. The charge will pass through thick clothing and leave the attacker in a disoriented state for up to 15 minutes. The "stun" effect is not life-threatening because the charge affects voluntary muscles only. It will not affect the heart or other vital organs.

Since personal security devices are relatively new on the security scene, it's likely that most of your customers are calling or coming into your store with some other product or service in mind. They may be thinking about a deadbolt or padlock or safe. A self-defense spray or personal alarm is more likely to be an "impulse" purchase. That means you must sell and merchandise these products effectively in order for them to be profitable.

Personal security is an emotional issue. It doesn't require much prompting to get many people thinking about the importance of personal security. That makes this category of products perfect as add-on sales. It doesn't matter that the customer may have walked in shopping for a handleset. Well-merchandised personal security products, if sold effectively, can easily become part of the final invoice total.

Dedicate a small area of your store for personal security products. Put up an eye-catching sign or "header" labeled "personal security products." Highlighting a category of products is

a tried and true approach to merchandising because it catches the eye. This is especially effective for specialty items such as personal security products. Get the customer's attention with products he or she might not have considered before!

An advantage you have in merchandising personal security products is that they don't take up much space. They are usually carded, and you can fit a large variety of them in a display at the end of an aisle (or "end cap") or on a counter top display. Some manufacturers of these products

have ready-made floor or counter-top display racks available. Often these racks are free with the purchase of an assortment. A great place for one of these assortments is right next to the cash register, or on the counter where the customer is likely to be standing while you cut their keys or key their lock.

Portable door locks are another inexpensive "impulse" item you can add to your personal security products display. They are small, simple door reinforcers that fit most in-swinging doors. They require no tools, are easy

to carry, and can be set up on a door in a few seconds. They're designed to be carried by business travelers, renters, vacationers, etc. who want a little more security while they travel. To catch the customer's eye, set up a simple door display...even a miniature one (rig up a 1' square board hung with hinges from a mini-door frame)...to show how the portable door lock works.

Have literature available at the point of purchase. Even if the customer isn't ready to buy today, he or she might be interested enough to pick up a brochure and read it. Assure the customer that you are qualified to explain the proper use of the product or, if applicable, direct them to the proper training/ licensing authorities.

Let people know you are in the business of selling personal security products. In addition to a colorful display inside the store, put up an eye-catching sign on your front window. Add "personal security products" to your ad in the yellow pages.

If you're a mobile locksmith, merchandising may not be an option. But you can still present these products to customers when you make calls. Perhaps you can offer them at a special discount when you go on an installation or service call. One mobile locksmith has been successful selling these products through a mail order catalog. This can be a fairly ambitious approach, but you can start as simply as using your existing customer mailing list and sending out simple flyers. When you want to branch out, you can purchase mailing lists that are categorized based on demographics, geographical areas, or types of products the individuals have purchased in the past.

Whether you're mobile or in a retail store, personal security products are high profit, impulse purchase items. Be sure you are familiar with the products and can show the customer how to use them. Getting their attention with good merchandising or incentives is a great start; making the customer comfortable with the product may be just the thing that closes the sale.

The author is the Marketing Manager for American Lock & Supply, Inc.



***HPC has it all:
Key Machines, Software,
Books, Car Openers,
Pick Sets, Tools, Door
Guards, and Key Cabinets***

[Click here for more information](#)

PERSONAL SECURITY PROFIT MAKERS

"Adding personal security products to your line can generate quick and easy profits from impulse sales."

Guardian Home Sentry

The Guardian Home Sentry is a complete home security system. All you need to do to set the Guardian up is plug it in and adjust the sensitivity. The Guardian detects doors and windows being opened anywhere in its effective range (up to 4,000 sq. ft.).



- Power: 15V DC (adapter included)
- Rechargeable battery back up
- Effective range 4,000 sq. ft.
- Five LED status indicators
- Heavy duty key-lock with two keys
- Internal 110 decibel siren
- External 4x110 decibel sirens
- Easy to set up. Do it yourself
- Two year warranty

High profit potential, sells on sight. For distributor information and complete wholesale catalog, please write to S & J Products and Services, 1005 N. 1st. St., Yakima, Wa. 98901 or call 509-575-1797, fax 509-575-1875.

Mace Security's Pepper Formula

Mace Security International has recently introduced a new Mace brand "Triple-Action"™ pepper formula to its line of defense sprays. The new formula relies on a powerful blending of pepper and tear gas to produce a faster, more intense reaction than is possible with ordinary pepper sprays. An ultraviolet dye has also been added to aid in the

identification of a would-be assailant.

The new Mace brand defense spray offers unique safety features, including a Flip-Top Safety Cap to assure ease of use and a Finger-Grip Dispenser that quickly orients the unit in the hand -even in the dark. The unit is packaged in an attractive, tamper proof clamshell and shipped in a variety of retail displays.



For more information contact Mace Security International, Inc., PO Box 679, Bennington, VT 05201, 800-446-6223 or fax 802-442-3823

Guardian America

Locksmith dealers can use Pepperblast to significantly increase revenue. It is an inexpensive add-on item and a great conversation piece. Customers appreciate knowing a company is concerned enough to offer them a chance at personal security. Pepperblast can also create multiple sales. Some locksmith companies promote the spray through an already existing customer base.



There are many benefits to offering Pepperblast. It is a profitable transaction for the dealer and a potentially life saving transaction for the customer.

No longer does the public have to search through local gun shops to purchase a personal protection device. Now, in the 90's, many alternative businesses are cashing in on this great opportunity.

For further information regarding this opportunity, please contact Guardian America at 800-869-8744.

Personal Defendere™

Personal Defendere™ looks like a pager and weighs only 4 oz., yet, at the simple pull of a pin, it becomes the world's loudest personal alarm. It produces a 130dB siren at 3200 hz-a frequency specifically selected to disorient and unnerve attackers.

It is being recommended by police officers and self defense instructors and, beginning March 1994, it will be featured in a television commercial starring Captain John Bunnell from "Cops" and "American Detective". National radio exposure began in December 1993.

Personal Defendere™ is not yet available in the discount and mass merchandising arenas and is priced at a minimal volume/preferred



wholesale level so that Lock and Key Professionals can compete effectively in the marketplace. Retail prices range between \$25 and \$30 with a full one year warranty.

If you are considering selling personal alarms, don't compromise your customer's safety. Get the world's loudest call for help. For information on POP displays and wholesale pricing call Rick Sparhawk at 619-583-5712.

Knock-Out Security Products

Knock-Out is a state-of-the-art self defense spray with remarkable features, including a secret capsicum chemical formula. It has a powerful long-reach "fog" emission that provides protection up to 20' - and it works fast. A one-second, all-weather penetrating burst is sufficient. A cloud of gas will put a human or animal attacker out for the count for up to 30 minutes, and the Super Spray Emission System reduces the need for accuracy.

Knock-Out sprays come in three popular styles: 1/2-oz. key chain, pen, and 3-oz. fogger. Appealing display racks attract compulsive purchasing and fast sales for this product.

Knock-Out also has a wide range of security related

Continued on page 50

Continued from page 48



products, all of which are good gross profit producers.

For catalog and information, call Knock-Out Security Products: 800-394-SAFE or fax 305-662-8511.

Hidden Edge™ Siren/Spray

Hidden Edge™ is a self defense tool consisting of a piezo siren and a canister of pepper spray, a natural,

environmentally safe substance. Three different "face plates" disguise it as a cellular phone, radio, or tape recorder.

The built-in siren draws attention with a 130 dB blast which alone may halt an attack. If not, a quick shot of the spray will render the attacker helpless for 30 minutes.

Hidden Edge™ will automatically disarm itself if a mugger manages to grab it from its rightful owner, allowing victim time to flee.

Each Hidden Edge™



comes also with a canister of harmless training spray.

Pepper spray works well against drunks, psychotics, drug addicts and other pain-resistant attackers against whom tear gas is often ineffective.

The Hidden Edge™ unit with training and pepper spray and three switchable disguises is available at a suggested retail of less than \$50.

Call 800-513-1984 for ordering information.

Electronic Defense's Profit Center

The O-Mega Network, Inc. kicks off its best year ever with a brand new product called The PSA™, Personal Security Alarm.

The small hand-held unit is about the size of a cigarette pack and uses a 9 volt battery.

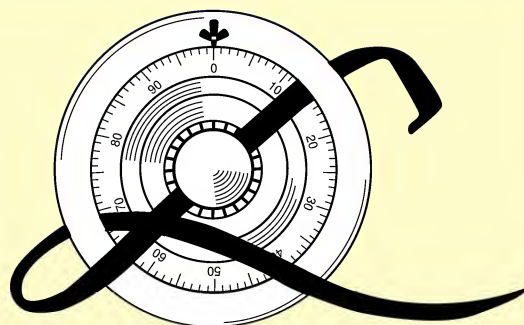
Features include a high quality, piezo speaker producing an extremely loud, frightening 130 decibel sound, panic button, and belt clip.



The PSA™ can be used as an intrusion/security alarm for doors, pool & toddler gates, medicine cabinets, hotel/motel room doors, etc.; can attach to a wallet or purse; can be used as a personal security alarm to ward off attackers, get attention. Excellent as a senior citizen help alarm or to draw attention for anyone who is lost, injured, trapped or incapacitated in any manner.

Minimum order is 10 at \$9.95 ea. Volume discounts available. Suggested Retail is \$19.95

California residents call 800-244-7886; US call 800-553-0222.



**Lockmasters has a
44 year history of
training security
professionals.**

[Click here for more information](#)

Next Month's Issue Will Feature: The Locksmith and CCTV

- Residential Profits with the easily installed Aiphone videocom.
- Commercial CCTV made easy.
- Closed Circuit TV: What it is and how it works.

The National Locksmith

**MORE PAGES,
MORE ARTICLES,
MORE
INFORMATION!**

**PRISON
SECURITY**



by
Rick Segerstrom

THE BARRACKS

"The barracks, closed down several years ago, are now needed for inmate housing again. They wanted them open in four days."

Having covered many of the common locks and their specifications, I am going to start writing articles about actual jobs that I have performed, explaining in detail the problem, the hardware solution if any and the final installation procedure I hope that this approach will help some of you to get a better idea of the problem solving and thought processes that brought us to the decisions on the final hardware solution.



1. The barracks to be worked on.

Problem

The barracks that were closed down several years ago are now needed for inmate housing again. Not to let us think this was going to be easy they were to open the barracks on Monday afternoon. Today is Thursday 11 am. A jail standards inspection must be performed before the barracks can officially house inmates. This inspection is scheduled for Monday at noon. (Now you have a small idea of what these people expect you to accomplish. It gets better, so read on!)

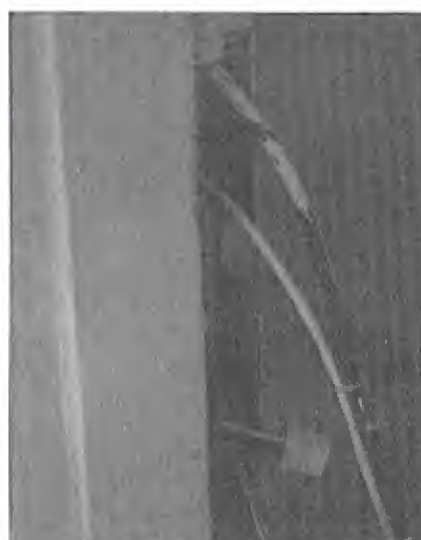
On Site Inspection

The barracks were being renovated by on site contractors. (See photograph 1.) The existing locks had been removed and in some cases the wiring was still in place with the connectors still attached. (A really lucky break.) We were to work on only four exterior doors and two interior doors. These doors were divided into two barracks "A" and "B," each having three doors; Two exterior and one interior each.

All doors use the Southern Steel 10195 deadbolt lock. (See photograph



2. The Southern Steel 10195 deadbolt lock.



3. The wire harnesses for the 10195 were still left in the frames.

2.) These locks are electrically controlled only from within the barracks on which they are installed. There is no central control being used. All locks are controlled manually by utilizing Abloy brand mortise cylinders. Of course, the operating keys have been lost, no one has any idea as to the whereabouts of the authorization card or for that matter what an authorization card even is!

Barracks B is the most complete. Each door has the appropriate wiring harness protruding from the cutout in the door frame that accepts the lockset. (See photograph 3.) The control panel is still in place and the wiring and condition of the units suggests that this wiring is probably serviceable and still intact. (See photograph 4.) All in all barracks B is in reasonably good shape.

Not so with barracks A. An absolute nightmare in the daytime, this barracks has been cannibalized to get parts for the rest of the barracks. Yet it is still expected to be ready in time. The contractors are able to finish their respective tasks in the time allowed and the only holdup between certification or failure rests solely with the locking system.

First I notice that the control panel has been removed and that the wiring has been cut off inside the wall without leaving any slack for splicing. (See photograph 5.) The door jamb had been pried open at one time leaving the jamb protruding out and the mounting pocket bent out of shape.



4. The control panel.

The wiring on two of the three locks is nonexistent. This means that the wires are deadended in the conduit somewhere in the attic, that is if they used conduit. The third lock has a wiring harness sticking out of the hole, with only four of the twelve wires connected.

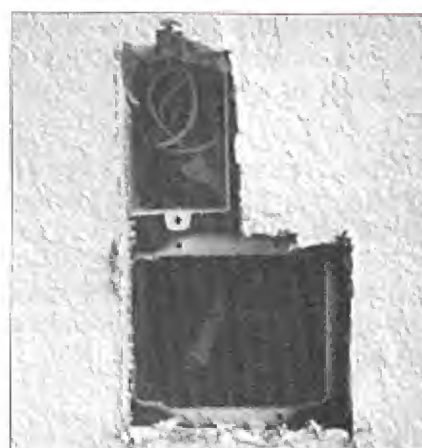
This pretty well explains the situation with hardware conditions, but not the condition of the people handling this little fiasco. It seems that we were supposed to competitively bid

this project against another company. They were still waiting for the other company to show up to do their site survey. No decisions were supposed to be made until at least two bids were received, reviewed, and approved by the project manager (who incidentally was off sick for the past two days.) Can it possibly get worse?

Of course! To help us along, the facility had allowed two of the trustees (inmates) to remove the locks from the doors and store them in the maintenance shed for bench testing. That's right, as I have stated several times before, *inmates* sometimes work on their own locks!

Solutions And Decisions

It was reviewed, approved and generally handed down by the highest authority available, the county purchasing agent (in direct response to the caterwallings of the Major in charge of the facility) to issue our company a purchase order immediately authorizing the mechanical repairs necessary to get the facility open for business. Now understand this very carefully. We were



5. Barracks A's missing the control panel and what existing wire remains cannot be spliced into.

authorized to make the locks work with a key, not with the electric solenoids with which they are designed to work.

I had been instructed to install new mortise cylinders into the locks to make them operational. It actually took over one hour for a decision to be made whether to allow us to do the final installation, or to let the trustees reinstall the locks. We had talked for almost three hours covering several possible solutions. During this time, I



Don't panic!
We have Security
Exit Devices.

[Click here for more information](#)

was told that they wanted me to use cylinders compatible with the rest of the facility, an SC8 keyway.

When I refused to use this type of cylinder, I was sure that I had lost the job. But when I explained the need for higher security cylinders with a pick resistant design, the reasoning took hold and the use of Abloy cylinders was approved.

Now I'm sure most of you have had

the pleasure of ordering Abloy cylinders from your suppliers and waiting several days for their delivery. I want to take this opportunity to express my gratitude to the Abloy factory for handling my order with such speed and accuracy. They don't sell to end users, but they ordered the parts for me through Fairway supply in Dallas, Texas. I placed the order for twelve mortise cylinders on Thursday at about 4 pm. On Friday they were delivered to my shop! Plaudit to everyone at Abloy and at Fairway, Thank you!

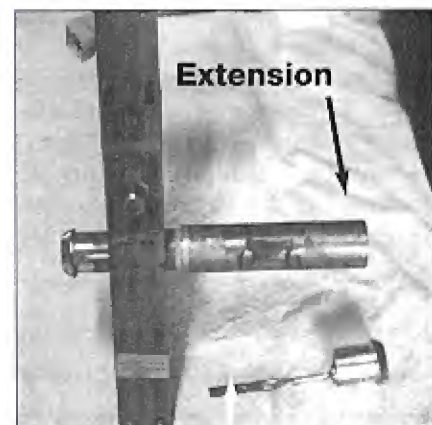
Getting the parts so quickly enabled me to have an extra day to work the kinks out of this little project. Problem was, the contractors weren't ready for me. The door frames hadn't been straightened, nor had the interior been completed. I was stuck until Monday anyway. I did, however, pick up the locks, and the mortise cylinder extensions from the facility so I could work on these at my shop.

The mortise cylinders must reach the distance from one side of the door frame to the other, then screw into the lock (similar to the Adams-Rite units we are familiar with) and then lock down with a set screw just like the standard units. The difference is, the extension is about 6" long. (See photograph 6.)



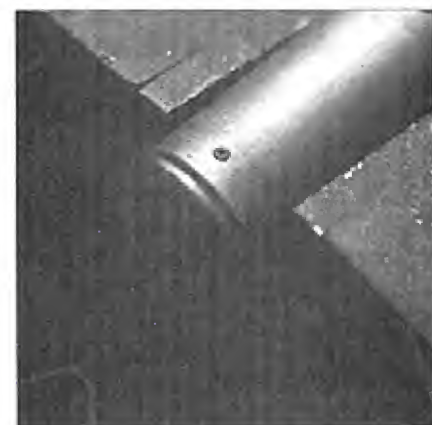
**To be a World Leader
You Need Quality
Products, Innovative
Technology and
Strong Partners.**

[Click here for more information](#)



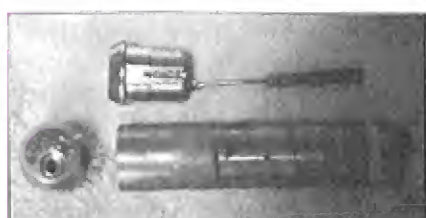
6. The mortise lock and extension.

In photograph seven you can see that the mortise cylinder is held in the extension by two tiny set screws. Removing these set screws allows the mortise cylinder to slide out the front. Now, a lot of retrofit work is required



7. One of the two set screws holding the mortise cylinder in the extension.

here. I was lucky, in as much as I was able to use the Abloy cylinders that were already in place. The tailpieces interchanged without much trouble. The length was correct, and no retrofit work was really necessary at this point. Notice however that, rim cylinder style tailpieces are used with an extension welded onto them to actuate the rear part of the cylinder extension. The component parts are shown in photographs eight and nine.



8. In order for the mortise cylinder to reach the back of the extension, a long rim cylinder style tailpiece must be welded to the lock.

After these parts are assembled into the working unit, they are then installed just like any other type of mortise cylinder, and subject to exactly the same operation malfunctions as the standard Adams-Rite units. They must be installed to the correct depth, and to the correct position for the operation of the lock to be correct.

Once I finally got started on site, the actual installation took less than four hours. I was extremely lucky in that the trustees actually saved all of the tiny screws that hold the face plates on and the mounting screws that held the units in place in the door frame. Installation was actually uneventful, unless you count having to work outside standing on a five-gallon



9. With the tailpiece attached, the cylinder is installed into the extension and then the extension is installed into the mortise lock.

bucket because the contractors were laying the floor inside. (See photograph 10.)

The time limit didn't allow for the testing of the electrical operation of the locks, they were not bench tested, they were not rewired, no control panel was installed, or even ordered, and no electrical power test was ever initiated. This function is to be installed at a later date. The facility made the deadline, even though the glue holding the floor tile in place hadn't yet dried.

Unfortunately, this is all too common in the detention field. A hurry up job, just to get by. When the time comes to actually make these locks work properly, the entire labor cost will have to be duplicated. Each lock will have to be removed, serviced,



10. Finished installation.

tested, and re-installed. Wiring will have to be pulled and the control panels will have to be installed. Probable time to complete the process . . . 18 hours minimum. That is if the floor stays glued down.

Total material for this job was 12 new Abloy cylinders and four keys, (the authorization card was signed for by the Major in charge). Labor included four hours on site and three hours off site. No travel charges were necessary as this facility is within twenty miles of my shop.



**HPC has it all:
Key Machines,
Software,
Books, Car
Openers, Pick
Sets, Tools,
Door Guards,
and Key
Cabinets**

[Click here for more information](#)

LIGHTER SIDE

Remember When...?

In the October, 1993, edition of "The Master Pin," monthly newsletter of the Locksmith Association of San Antonio (TX), appeared a letter written by one of its members, Gilbert Aguirre. In it, Gilbert contrasted memories from his childhood with the way things are today, listing quite a number of items not invented or discovered before 1930, when he was born.



by
Sara Probasco

He tells us he came along "before television, penicillin, polio shots, frozen foods, Xerox, plastic, contact lenses, frisbees, and the pill...before radar, credit cards, split atoms, laser beams, and ball point pens...before panty hose, dishwashers, clothes dryers, electric blankets, air conditioners, drip dry clothes, ...McDonald's...yogurt, and guys wearing earrings." The list goes on.

After reading his thought-provoking letter, I began to reflect upon my own past and the less complicated life in days gone by. Was it really simpler then, or do I merely recall those days from the perspective of inexperienced and idealistic youth? I can remember (barely) when a half dollar would get a kid into the Saturday matinee movie, complete with popcorn, a soda, and a candy bar-(and the movie included "MovieTone News Of The Day", a "comedy", the latest episode of a cliff-hanger serial, and ushers with flashlights who seated you. That was back when "gay" meant happy, a "trip" was a journey, a "rumble" was the sound thunder made, and a "hooter" was an owl.

It was an era when a person who locked his doors was considered inhospitable, rather than prudent, and

money was hidden in a mattress or cookie jar, because no one considered owning a safe, and a lot of folks didn't trust banks.

Only in a bank could you find a burglar alarm - sometimes not even there - and anyone who locked keys in a car deserved what he got for locking it up in the first place, according to the local gossips.

I remember the first panty hose on the market, and propeller commercial airplanes that required a walk "uphill" to your seat, and where the only refreshments offered were coffee, tea, or milk. Traveling to Houston Texas in 1960, I remember being overwhelmed by Gulf Gate, the first enclosed shopping mall built there, and the only one I had ever seen.

I remember the first surveillance cameras in the city of 150,000, where I lived. They were installed in a local department store behind bubbles of mirrored glass and quickly paid for themselves. Three long-time clerks in various departments of the large store were arrested the following week for pilfering money from cash sales-and what other kind of sales were there, in those days?

Don tells me the only lock he remembers around the farm where he grew up in north Texas was a padlock his father finally attached to the gasoline pump near the barn. That was after he had investigated every other option to discover the cause of his dwindling supply of fuel and had come to the conclusion that either an employee or a sneak-thief was helping himself uninvited. He never solved the riddle of who, but he did put a stop to the "evaporation" problem by locking the pump.

Many things in our security-oriented world didn't change much, for a long time. Farmers and ranchers

in our part of the country gradually became accustomed to locking gates - more to keep livestock in than interlopers out. They found that a good medium-size padlock with a short shackle suited most of their purposes, although recently we have managed to convince many of the ones with hired hands that rekeyables can save them money, in the long run.

But "times, they are a changing," as the saying goes. With the increase of burglaries, thefts, and forced entries, businesses and residences alike are installing high-security locks and monitored security/alarm systems in unprecedented numbers.

Automobile manufacturers are going all-out in the direction of theft prevention, making our job of lock-out entry more and more complicated.

I remember the first year we were in the locksmith business, sometime after the advent of plastics. A young man had been trying to get a car door open at the car wash across the street. In desperation, he finally charged into our shop and asked if we had anything he could use to open the vehicle.

I suggested a locksmith.

Undaunted, he asked if I had a coat-hanger he could use, but strangely enough, the molded plastic one I offered wasn't to his liking. About that time, the lady who owned the car came in saying her husband was on his way with a spare key, so all ended well.

As Gilbert Aguirre pointed out in his letter to "The Master Pin," with all the changes in terminology and distortion of word meanings, the discovery invention of a vast array of new products and methods of doing things, and the world of increasingly high-tech information we find

Continued on page 110



by
Dale Libby

SCHLAGE PADLOCKS

"The beauty of these Schlage PL series padlocks is that they use any Schlage six pin cylinder."

Yes, I can write on more than safes and vaults. I am a full service locksmith/safeman, so I was overjoyed to see the introduction of Schlage (probably the most mispronounced word in locksmithing next to Diebold) Padlocks. This heralds the beginning of a great way to key padlocks into a Schlage key system without having to go to other brands of padlocks, buying special cylinders and tail piece adapters, springs and spacers, in order to use the Schlage key system.

The beauty of these Schlage PL series padlocks is that one can use any Schlage six pin series knob or deadbolt cylinder with a simple adapter in any of these padlocks. Thus, one can key cylinders with any of the standard commercial keyways as well as the restricted keyways. Any Schlage system can now be enhanced by using well made quality padlocks, including the Primus system.

As can be seen in photograph one, The padlocks are brass with hardened shackles and come in a variety of sizes and shackle lengths. The name "Schlage" is embossed across the front of the padlock. The bottom of the padlock has the typical figure "8" shape on both the regular change as well as the interchangeable core variety with slight differences. I will speak on that shortly.

OK, who really makes these padlocks for Schlage? The answer is really simple for anyone acquainted with padlocks and locksmithing. Photograph two shows the back of a Schlage padlock on the left, and the back of an American Lock padlock on the right. There are several noticeable similarities immediately apparent.

First, there are drain holes drilled for both the head and foot of the shackle in both padlocks. This is a system that American Lock has used with good success for many years.



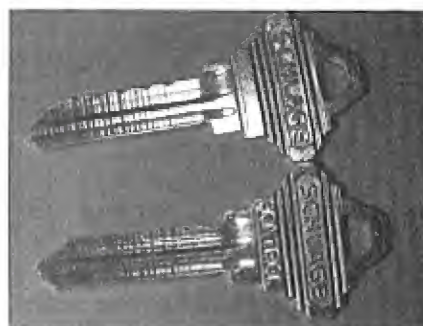
1. The Schlage PL-Series rekeyable Padlocks.



2. A Schlage Padlock compared to an American lock.



3. Schlage I-Core cylinder. Note pin retaining lug on top of cylinder at rear of spring chamber.



4. A working key on top and seven pin control key at bottom. The control key has a six depth in the seventh position.

Secondly, and most evident and explicit are the three capital letters stamped on the backs of both the American and Schlage padlock. (I am sure someone knows what these letters signify.) It means that these well engineered Schlage padlocks are made by the American Lock Co. and one can expect years of good service from these units.

Let us now look at the Interchangeable Core padlock a little more closely. These can be easily identified by looking at the bottom of the padlock. The series designator for these padlocks is the PL4000 series lock. One can tell the I-Core configuration because the top of the figure "8" is smaller than the bottom circle. A dead give away is that the top part of the "8" has the word "Schlage" imprinted there on.

Photograph three shows the removed core. To remove the core, insert the control key and turn it 15 degrees clockwise until the turning action stops. Pull on the trapped key to remove the core. When the control key is turned, a small spring loaded pin is pulled in flush with the side of the top of the cylinder housing and the whole unit is then pulled out for keying.

Photograph four shows the difference between an operating key and the control key. Both of these keys are cut to a one depth for all six spaces. The control key (bottom) however, has a seventh space which is cut to a six depth.

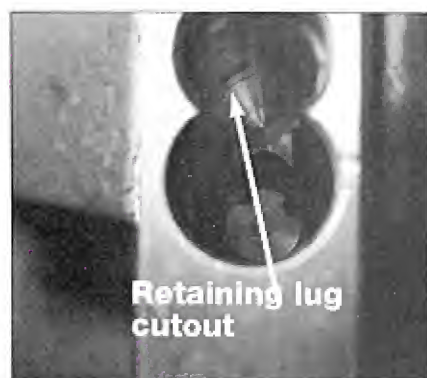
Do not panic. I am sure these seven cut blanks are available, but in the field, one can use a six pin blank with both the top and bottom shoulders cut back to accomplish the six depth cut in the seventh space. If you will be doing a lot of Schlage I-Core work, then the acquisition of the seven pin blank is a must.

There are no special adapters for the I-Core cylinder to fit the padlock when using the Primus system. The retainer cap position must be changed to the 2 o'clock pin position from the 10 o'clock normal position.

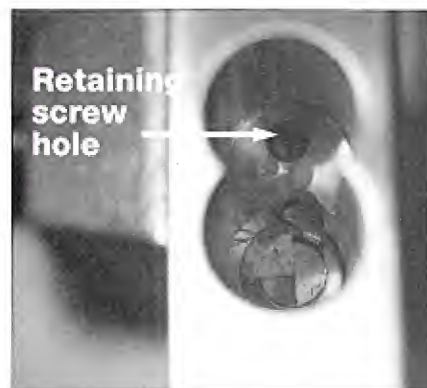
To replace the core, insert the control key fully. Turn the key clockwise as far as it can go. Push the core into the padlock as far as it will go. Then turn the key back to the normal position and remove key from the core. Test the change key and any master keys before putting the padlock into service.

Photograph five shows the inside of the padlock cylinder housing chamber. See the cutouts for the back of the cylinder and note that there is no hole in the top chamber for a retaining screw. Instead, and not easily seen here, there is a cutout for the I-Core retaining lug.

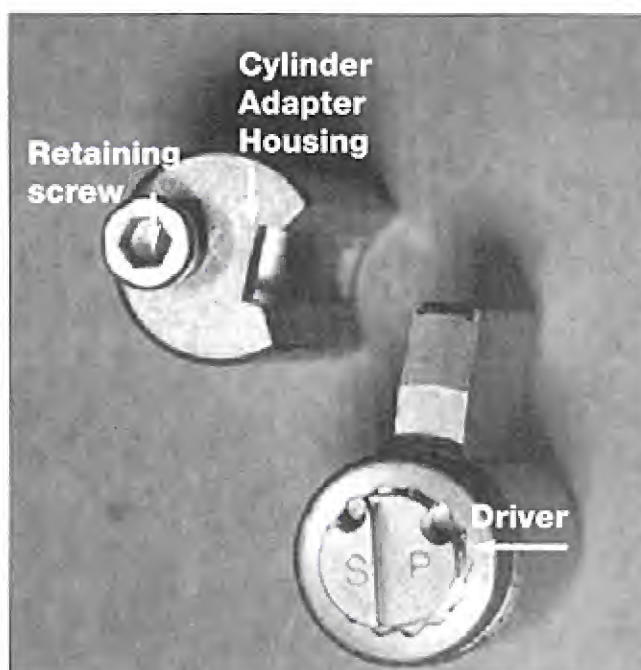
Photograph six shows the PL1000, PL2000, and PL3000 chamber configurations. These models use the standard Schlage knob cylinder and



5. Inside view of the I-Core Schlage cylinder housing chamber. Note cutout for the retaining lug.



6. Inside view of standard chamber. Note hole in top chamber for the retaining screw.



7. Regular Schlage cylinder with adapter housing and retaining screw. Note driver in the back of the cylinder. It is stamped 'S/P.'

are retained by a cylinder adapter housing and screw. There is a screw hole in the top of the chamber, and both upper and lower chamber are equal in size.

Removing or replacing the cylinders in these padlocks is just like rekeying cylinders in American Padlocks. First, unlock the padlock. Next, remove the retaining screw at the bottom of the shackle hole. Use a Phillips screwdriver on the PL1000 and PL2000 series padlocks, and an Allen head hex wrench for the PL3000 series padlocks.

Photograph seven shows a six pin cylinder adapter housing with the normal six pin cylinder. To reinstall, position the housing over the cylinder spring chamber and insert the unit into the padlock. Reposition the retaining screw and tighten securely. If you look closely at the back of the Schlage cylinder, you can see the inclusion of a driver below the plug retaining cap. This driver has two levels with the letters "S/P" stamped on the back. One would have to believe this stood for Schlage Padlock. The hex headed Allen screw is also shown in the cylinder retainer housing.

To summarize, the PL series of padlocks provide quick and easy integration into Schlage key systems. PL-Series padlocks can be

masterkeyed into existing Schlage systems including restricted and Primus. This allows you, the locksmith, to standardize security hardware throughout any building or security area. These padlocks are also available with Primus high security cylinders for applications that require extra security.

The padlocks have dual ball locking mechanism which provide extra security against physical attack. The body is a one piece of solid brass designed to resist high impact. The shackle is chrome plated and offers high resistance against cutting. PADLOCK and PROSPER!!!



**LOCKMASTERS
SECURITY
MANAGEMENT**
TM

**Providing quality
tools, parts,
and service for
the security
professional.**

[Click here for more information](#)

BUSINESS BRIEFS

News from the Locksmithing Industry

INDUSTRY INTERVIEW...

Dave McOmie has been writing on safes and vaults since coming on board with The National Locksmith in the spring of 1986. Now, eight years later, he is recognized worldwide as the authority on safecracking. Dave is Director of The National Safeman's Organization, author of The National Locksmith Guide to Safe Opening, Volumes 1 through 5 and The National Locksmith Guide to High Security Safes, Volumes 1 and 2, and has written more than 100 technical articles. The National Locksmith Managing Editor, Tom Seroogy, caught up with Dave and the following is excerpted from their chat.

TNL: Dave, most people in this business know who you are, but few know how you got into the business. How did it happen?

DM: I was fascinated by Alexander Mundy, the fictional super-thief played by Robert Wagner in the 1960's TV show, *It Takes a Thief*. Mundy could crack any safe, pick any lock, and pick up any girl. Driven by a desire to be just like him, I started sweeping floors at a local safe and lock company. Insatiably curious, I started taking locks and safes apart, figuring out how to defeat them; before long, I was picking locks and opening safes right alongside my boss, Eugene Corey. Later I worked for Northwest Safe Company, and Allied/Gary. Although I became an expert safecracker, I never quite matched Mundy's sophistication or success with the fairer sex. It must have been the aftershave.

TNL: Have you ever earned your living outside this industry?

DM: Yes. During my last two years at Allied, I played lead guitar in a country band. I would open safes from 8 AM to 5 PM, have dinner, and play guitar from 9 PM to 2 AM. Finally, the band had a shot at the big time, so I left Allied and continued in the band for another three years. We worked the casino circuit in Nevada, the club circuit in the western states, taped several television shows, cut two albums, and opened for Emmy Lou Harris, Tammy Wynette, George Strait, Jerry Reed, and a few others. It was great fun, but the pay was even worse than it is in the safe business. Fortunately, I was able to do freelance safe openings to supplement my income. Eventually, the night

life fun wore off, and the freelance business got so busy that I couldn't keep doing both, so I quit music and came back to my first love: safecracking. It was a good thing, because I had just about blasted my ears to Kingdom Come standing in front of a high-powered guitar amplifier six nights a week.

TNL: You are hearing impaired?

DM: Yes. I wear hearing aids and couldn't function without them. Thank goodness for modern technology.

TNL: Well that brings us to the present. What are you currently doing?

DM: Four things. First, I am Director of The National Safeman's Organization and Editor of our newsletter, *The National Safeman*. In those capacities I am responsible for the content of our newsletters and technical files. Second, I write books on safecracking, and am currently working on a comprehensive course that should be out early next year. Third, I write philosophical and political essays for publication mostly in journals of opinion.



Dave McOmie (right) and his philosophy mentor, Mortimer Adler, on a break during a philosophy seminar in Aspen, CO.

Fourth, I still run my one-horse safecracking business, although I have slowed down considerably. Whereas I used to open five to ten safes a week, I now open two maybe three. I ruined my knees by being too stupid and macho to wear kneepads on all those in-the-floor openings. Now, even though I am smarter, the damage has already been done. These days, I try to stick to high-

...INDUSTRY INTERVIEW

security safes, vault doors, and free-standing safes.

TNL: Tell us a little about your background in philosophy. This is something that few people in this industry know about.

DM: I hold a master's degree in philosophy from the University of Washington, and have worked closely with Mortimer Adler, who is Director of the Institute For Philosophical Research. In some ways, philosophy reminds me of safe opening. Both are like jig-saw puzzles that are challenging to figure out. The difference is that opening a safe is a puzzle about a physical object, whereas philosophy consists mostly of puzzles about non-physical objects, such as the meaning of life, the existence of God, morality, etceteras.

TNL: Is another difference between them the fact that you have been eminently successful at figuring out *all* the safe opening puzzles, but only a few of the philosophical ones?

DM: Yes. Philosophy's challenge is humbling. But even if I never reach The Truth about the universe and humankind's place in it, the journey itself will have been richly rewarding and worthwhile.

TNL: Have you ever been humbled by a *safe*?

DM: Oh yes, many times. Oddly, it is most often the "easy ones" that end up being the most trouble. My most recent humbler was an old Meilink fire safe with a spinning handle. This indicates a broken shear screw, which is usually a simple opening. All you do is side or top drill, and push in on a bolt or a boltbar. Well, this one had a pivoting boltbar that had to be pulled—not pushed—to retract the locking bolts. What a mess I made. The whole story will be in an

upcoming article.

TNL: Dave, what advice would you offer newcomers to the business?

DM: I would ask rookies to examine their reasons for wanting to be in this business. By and large, this not-so-lucrative industry. Most of us in the nuts and bolts end of this business are in it because we love it, and we do not delude ourselves with daydreams about pots of gold at the end of the lock and safe rainbow. Beyond that, I have only two pearls to cast: First, work on your people skills—always be as polite and well-spoken as you can. Far more customers are lost by employee rudeness or indifference than by incompetence. Second, educate, educate, educate. Take classes, read trade journals and books, talk to your peers—in short, *be the best you can be*. The combination of people skills and upgraded technical skills is unbeatable.

TNL: If you had it to do over again, what would you change?

DM: Well, I wish I were a better locksmith than I am. In this era of specialization, my skills are embarrassingly limited. Recently I locked the keys in my 1993 Honda Accord and had to call a locksmith friend to let me in. He laughed about it for weeks and went around telling everybody!

TNL: Any final words?

DM: You know, the lock and safe industry has an effect on its practitioners unlike that of any other industry I can think of. How many plumbers or electricians or carpenters or doctors or lawyers can you think of who eat, breathe and sleep their profession? For many of us it is both a lifelong obsession and a love affair. And I would like to think that it shows in our work. After all, besides our family, friends, and work, what else is there?



INDUSTRY NEWS

The Black & Decker Corporation announced that it has sold its Corbin Russwin Architectural Hardware business to Williams Holdings PLC, owner of Yale locks, for \$80 million. Black & Decker will continue to own and operate its Kwikset lock business in North America as well as DOM, NEMEF, and Corbin Co. in Europe. Kwikset is the largest producer of residential locksets in the world.

The 1994 Lockmasters Tool Catalog is now available. Their largest issue to date, the 70-page catalog contains product information on an expanded range of tools and publications for safe and vault technicians and locksmiths.

A complementary copy of the 1994 Tool Catalog is available by calling a Lockmasters sales representative at 1-800-654-0637. Lockmasters, Inc., is located at 5085 Danville Road, Nicholasville, Kentucky 40356-9531.

In a continuing effort to better serve the industry, Security Lock Distributors has recently expanded their Technical Information Service capability. Trained personnel are available to answer specific questions relating to product function, applications or installation.

The company welcomes questions of a technical nature. Call or write to Security Lock Distributors, 59 Wexford St., Needham Heights, MA 02194. Phone 1-800-847-5625 • Fax 1-800-878-6400.

For locksmiths and safe dealers of the United States, we have some very good news: Ambassador Safe Company is structurally changing to become Ambassador Wholesale Safe Distributors.

We are proud to announce the addition of Meilink, Fire King, and Chubb to our existing product lines of Ambassador and Cannon.

This will offer you, the safe dealer, more variety and selection from our large In-Stock inventory which allows for quick shipment when you need it most.



THRU THE KEYHOLE



A Peek at Movers & Shakers in the Industry

**ATTENTION MANUFACTURERS
AND DISTRIBUTORS:** Would you like
your company and products to be
profiled in *Thru The Keyhole*? Please call
Managing Editor, Tom Seroogy at
(708) 827-2044.

Master Lock's ProSeries Padlocks

When developing the Pro Series line of padlocks, Master Lock Company interviewed end users and locksmiths about the features they would like in a padlock.

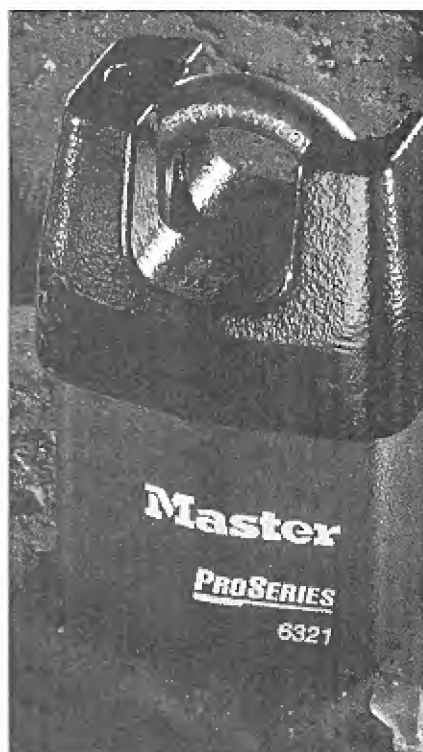
Industrial users and locksmiths wanted:

- greater resistance against physical attacks, particularly the shackle.
- enhanced performance in harsh weather conditions, especially outdoors.
- quick and easy integration with existing padlock systems.
- common parts and interchangeability.

The Pro Series line of High Security and Weather Tough™ padlocks features boron alloy steel shackles, Xenoy® thermoplastic covers and Estane shackle weather seals, to provide the benefits desired by locksmiths and end users.

"Pro Series padlocks provide high security, at reasonable prices, for commercial and industrial applications," said Tom Smith, product manager for Master Lock.

The hardened boron alloy steel shackles provide up to 15,000 lbs. of resistance against cutting, more than twice that of standard steel. Dual ball-bearing locking protects against pulling and prying shackles.



Flow-through debris channel and special thermoplastic covers improve weather resistance and keep cylinder free from jamming due to dust, dirt, oil and other contaminants.

Following is a more detailed description of the seven padlocks in the Pro Series line:

No. 6121 2-1/8" Weather Tough™ laminated steel padlock with Xenoy® thermoplastic lock body cover, boron alloy steel shackle and rekeyable design. The shackle diameter is 5/16" and standard shackle length is 1-1/8". Extra-long 2-3/8" or 5-5/8" shackles are available.

No. 6125 2-3/8" Weather Tough™ laminated steel padlock with, Xenoy® thermoplastic lock body cover, boron alloy steel shackle and rekeyable design. The shackle diameter is 3/8" and standard shackle length is 1-3/8". Extra-long 2-3/8"

shackles are available.

No. 6127 2-5/8" Weather Tough™ laminated steel padlock with Xenoy® thermoplastic lock body cover, boron alloy steel shackle and rekeyable design. The shackle diameter is 7/16", standard shackle length is 1-3/8". Extra-long 1-7/8" shackles are available.

No. 6230 2-1/2" High Security round, solid steel body padlock; boron alloy steel shackle, and rekeyable design. The shackle diameter is 7/16" and standard shackle length is 1-1/8". Extra-long 2" shackles are available.

No. 6321 2-1/8" High Security laminated steel padlock with shrouded, iron shackle guard; boron alloy steel shackle, and rekeyable design. The shackle diameter is 5/16" and standard length is 3/4".

No. 6325 2-3/8" High Security laminated steel padlock with shrouded iron shackle guard; boron alloy steel shackle, and rekeyable design. The shackle diameter is 3/8" and the standard length 3/4".

No. 6327 2-5/8" High Security laminated steel padlock with shrouded iron shackle guard; boron alloy steel shackle, and rekeyable design. The shackle diameter is 7/16" and the standard length is 3/4".

Cylinders

Pro Series keys into a variety of padlocks, including all Master Lock padlocks, as well as American padlocks. And Pro Series cylinders can be easily changed.

The 296W1 is a four-pin cylinder that keys to existing Master Lock padlock numbers 1, 2, 3, 4, 5, 6, 7, 11, 77, 33-39, 425 and 475.

A variety of five pin cylinders are available, including:

296W6000 – Standard keyway for Pro Series padlocks.

296W15 – Keys to match existing Master padlock No. 15.

296W17 – Keys to match existing Master padlock No. 17.

296W27 – Keys to match existing Master padlock Nos. 21, 24, 25, 27, 31, 220 and 230.

296W81 – Keys to match existing Master padlock Nos. 81 and 82.

296W600 – Keys to match existing American Lock padlock series 700,1000 and 5000.

Six-pin cylinders can also be ordered:

296W7000 – Optional keyway for Pro Series padlocks only

296W700 – Keys to match existing American Lock padlock series 700,1000 and 5000

The interchangeable cylinders and shackles provide maximum flexibility and allows the locksmith to customize padlocks to meet specific applications while reducing inventories.

For further information about Master Lock's new Pro Series padlock line, contact your local Master distributor, or call Master Lock Company at 414-444-2800.

Cross Country Motor Club

Founded over twenty years ago, Cross Country Motor Club, Inc., and its affiliate Cross country Motor Club of California, Inc., (CCMC) is the largest independent motor club in the country today. It is also the fastest growing. The company is well known for its private label roadside assistance programs and is considered by many to be the "Tiffany" service provider in the industry, with clients such as Rolls-Royce, Jaguar, Oldsmobile, BMW, and Infiniti, among many others. Today, more than ten million motorists hold identification cards for

services provided through CCMC, and last year the company handled nearly 500,000 service calls nationwide.

Because CCMC's niche is in customized, high quality programs, the company has to make sure that its service providers meets the highest standards. "When our vendors/partners go on a service call, they are acting as an extension of some of the world's most prestigious corporations," says Bill Wilson, the company's National Account Manager. "They have to be prepared to provide top tier service and understand the specific needs of our clients, their customers and, in many cases, the vehicles they are servicing." For example, this might include knowing that a BMW requires special lock-out handling procedures. CCMC works to provide vendor with assistance and information as needed. "Our door is always open," says Wilson.

In the locksmith field, "CCMC expects to develop by mid-1994 an emergency national home repair referral network service," says Wilson, an eight year veteran of the company.

medeco[®]
HIGH SECURITY LOCKS

**Integrity. Ingenuity....
security solutions.**

[Click here for more information](#)

"This effort will require us to solicit general contractors, electricians, plumbers, etc. We also intend to rely on our existing locksmith network to assist us in delivering requested services as part of this new network."

What are additional future plans are in store for the company? The year 1994 will see a major "re-engineering" in how CCMC and its vendor network can increase efficiencies in such areas as call processing, quality control and vendor call back procedures, automated (electronic) invoices and claims payments, as well as other business procedures which will create service efficiencies and cost savings for both CCMC and its vendor network.

Currently, utilizing over 1,500 qualified locksmiths nationwide, CCMC is continually looking to enhance its service capabilities and extend additional business opportunities to new locksmiths. To become a qualified vendor in CCMC's National Dispatch Network, locksmiths must meet certain criteria such as being bonded, carrying general liability insurance, delivering quality service on a regular basis, being skilled in both vehicle and property entry procedures, and, whenever possible, being available 24 hours, 365 days a year.

Locksmiths can contact the CCMC Service Network Administration Department at 4040 Mystic Valley Parkway, Boston, MA 02155, 800-541-2262 to obtain additional information and/or an application.

M.K. Morse Co.

The key to good deliveries begins with a state-of-the-art manufacturing facility, according to the Canton, Ohio-based, M.K. Morse Company. All of the firm's functions are performed under one roof, resulting in a very efficient work flow system. Everything from design and engineering to heat treating takes place with all 200-plus employees working as closely-knit team.

Because competition is heating up for hardware producers worldwide, the major market shares are going to those companies that put emphasis on

both product quality and fast, efficient service to their customers. Incorporating these factors into a corporate philosophy, M.K. Morse, in less than three decades, has grown into a leading U.S. manufacturer and global marketer of industrial quality saw blades, hole saws, abrasive wheels and mounted points for the professional and do-it-yourself markets.

The firm states that it is best known for the development of a hole saw known as The Real McCoy®. The patented hole saw has a built-in arbor that cuts a bit deeper than traditional saws. This characteristic, according to the company, eliminates the problems and frustrations encountered with mismatched arbors. It also provides great conveniences for the user, and just as importantly, it simplifies ordering and stocking for wholesalers and retailers.

Morse's intentional effort has increased steadily and now represents 20 percent of its total sales volume. Currently, the company ships its products to 48 countries, including South America, the Middle East and South Africa.

Morse delivers almost anywhere in Europe within five days by air. "It is not unusual for our European customers to get deliveries from us faster than our European competitors can ship," says Ken Morse, founder of the firm. "We see the Pacific Rim, especially countries like South Korea, Taiwan, Thailand, Singapore, Hong Kong, Australia and New Zealand, as our next large growth area."

The firm states that its success in delivering a quality product in a timely manner is enhanced by the network of distributors and manufacturing agents worldwide that take care of its customers on a local level. M.K. Morse invests heavily in maintaining an inventory of cataloged products, because if the product cannot be shipped off the shelf, a costly delay is incurred. In order to avoid this, the company always keeps its shelves fully-stocked, allowing orders to be shipped promptly. These timely deliveries enable distributors to have great inventory turnover rates. One distributor reported a 235 percent GMROI (Gross Margin Return on

Investment) on Morse products with nine turns of his investment for the first half of the year.

The M. K. Morse Company can be reached at P.O. Box 8677, Canton, OH 44711; telephone 216-453-8187, or fax 216-453-1111.

Radionics Easikey System

A revolution in the security industry took place in 1974 almost by accident. When electronics engineer John Pate and businessman Ron Gottsegen started their small company near Monterey, California that year, they needed a good way to protect some expensive test equipment in their new shop.

Looking at the burglar alarms on the market at that time, they found only devices that were based on clumsy mechanical relays. With his knowledge of computers and electronics, Pate thought he could put together something better. He did, with such success that Pate and Gottsegen decided to change their company, Radionics Inc., from a manufacturer of controllers for manufacturing plastics into an innovator in alarm technology.

The first Radionics team designed a burglar alarm system based on the microprocessor, and, in 1975, brought the alarm industry into the Computer Age. Within a few years the entire alarm industry switched to microchips.

One major advance that the new technology brought to the industry was the great wealth of information that could now be transmitted from the protected premises to a monitoring facility. In the past, a typical alarm signal simply indicated that some event had occurred at a certain address. The microprocessor, in contrast, could receive, sort, encode, and send out precise details: Skylight window broken in warehouse #3; heat detector triggered in the stock room; door opened in the CEO's office, etc.

With such information on hand, police and firefighters no longer had to search for the problem, but could

Continued on page 68

Continued from page 66

go straight to it knowing what to expect, saving time, property and lives.

As Radionics grew, it packed more and more functions into its electronic circuitry, and introduced control panels that made it possible to integrate burglary, fire, and access control in one coordinated security system.

Even with the introduction of the fully integrated access control system, the role of the locksmith could remain essentially unchanged. The installation of large access control systems like the kind offered by Radionics was a different, separate area of specialization, which in many cases competed directly with the usual business of the locksmith.

Then, when Radionics recently brought Easikey the locksmith without special electronics training could now purchase an effective, small-scale access control system that is easy to install. Locksmiths with no special training can now enter the Computer Age with simple devices

provided by the security dealer.

Installation of the Easikey system is no more complicated than putting a lock in a door. Programming the system does not resemble programming a computer; it is more like the simplicity of using a telephone touch-pad-except the Easikey controller has only two buttons.

The Easikey system can handle up to 99 keys for one or two doors. The door controller can be put as far as 300 feet from the reader, so no one can force entry just by shorting wires at the reader.

For the householder or the office manager, the Easikey electronic proximity key has several obvious advantages over the standard lock and key.

1. Easikey electronic keys can be added or deleted instantly at the site; when tenants or employees change, changes in keys take place without delay.

2. For anyone who might have a problem inserting a key in a lock, the Easikey electronic key only has to be held near the reader in order to unlock the door.

3. Any Easikey electronic key can be programmed to work in any number of Easikey system's; if desired, the user can use the same electronic key at home, at the office, and at the remote warehouse.

4. Each Easikey electronic key has its own code, which no one can duplicate.

The long-term impact of the electronic key on the locksmith's trade is not possible to predict. But, whether or not Radionics' Easikey dealers can now provide locksmith with systems that open new electronic business opportunities to any locksmith who has the typical skills and training of the trade.

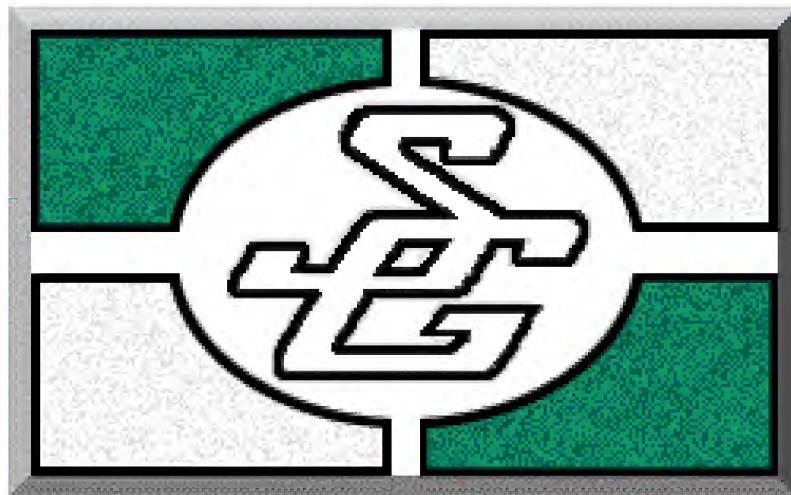
For more information contact Radionics at 1800 Abbott St., Salinas, CA 93901, 800-538-5807.



NATIONAL
AUTO LOCK SERVICE, INC.

National Auto Lock Service, Inc. offers a wide range of equipment and services for the Automotive Locksmith. From tools and hard to find key blanks to transponder programming, we can take the mystery out of car service. We accept credit card orders, and can ship COD. Contact us for the latest in automotive technology.

www.laserkey.com



***Make Sargent & Greenleaf's
Comptronic locks your choice for
electronic safe locking solutions.***

[Click here for more information](#)

ENTER THE TECHNITIPS 1994 CONTEST



Silca's Bravo USA



FIRST PRIZE

Locksmith designed, the Silca Bravo USA is a quality semi-automatic duplicator. Four-way jaws hold even the smallest keys as this. One of the most accurate key machines on the market.

HPC's Punch Machine™



SECOND PRIZE

The Punch Machine™ (1200PCH) is HPC's newest addition to the 1200 series key machines. It works on the same principle as the 1200CM, making it quite versatile. It is also very accurate and completely portable.

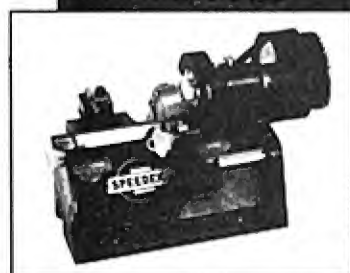
Belsaw 200



THIRD PRIZE

Duplicate, cut by code, cut flat steel keys. Complete machine with motor, three cutters, guides, and instructions. Built in micrometer.

HPC 9120



FOURTH PRIZE

HPC's most compact key cutting machine features reversible jaws. Double-sided copy dog cuts flat steel and safety deposit keys and has softy brush. Excellent versatile machine.

Accumark Key & Lock Stamp



FIFTH PRIZE

For the easiest and straightest way to coin. The Accumark stamp holder provides accurate stamping of keys and mortise lock faces. Includes holder, mortise cylinder attachment and a custom stamp.

\$100 Cash & Flat Rate Manual



SIXTH PRIZE

\$100 in cash will brighten your day! So will the *Flat Rate Manual for Locksmiths*. The manual will help you price your services for profits. You won't ever have to guess how to price again.

CODE BOOKS FROM The National Locksmith®

General Code Book Set (NGCB)



SEVENTH PRIZE

These three books contain 450,000 codes covering domestic lock and automobile codes.

Padlock Code Book Set (NPCB)



EIGHTH PRIZE

These three volumes offer 462,000 codes covering Dudley, American (Junkunc), Master and Yale.

Foreign Code Book Set (NFCB)



NINTH PRIZE

This volume set holds 432,000 codes for the complete variety of foreign codes, from Alpha Romeo to Yugo.

TECHNITIPS

Helpful hints from fellow locksmiths

Send in your tips
and win.

HOW TO ENTER

All you need to do
is submit a tip,
covering any aspect
of locksmithing to
**The National
Locksmith.**



by
Jake Jakubowski

Certainly, you have
a favorite way of doing things that
you'd like to share with other
locksmiths. Why not write it down and
submit it to: *Jake Jakubowski,*
*Technitips' Editor, The National
Locksmith, 1533 Burgundy Parkway,*
Streamwood, IL 60107.

Tips submitted to other industry
publications will not be eligible! So get
busy and send in your tips today. You
may win cash merchandise, or even
one of many key machines or code
book sets. At the end of the year, we
choose the winners of the listed prizes.
Last year dozens of people walked off
with money and prizes. Wouldn't you
like to be one of the prize winners for
1994? Enter today! It's a lot easier
than you think.

EVERY TIP WINS "LOCKSMITH BUCKS!"

Yes, every tip published wins a prize.
But remember, you must submit your
tip to **The National Locksmith**
exclusively. Each and every tip
published in Technitips wins you \$25
in Locksmith Bucks! Use this
spendable cash toward the purchase
of any books or merchandise from
The National Locksmith. You will
also receive a Bonded Locksmith
bumper sticker and decal. Plus you
will be eligible for really big prizes.

BEST TIP OF THE MONTH

If your tip is chosen as the best tip of
the month, you will win \$50 in cash as
well as \$35 in Locksmith Bucks! Plus
you will receive a Bonded Locksmith
bumper sticker, decal and a
Locksmith cap. Plus, you may win one
of the annual prizes.

These Prizes Awarded Each Month!

- All-Lock A 7000 VATS Decoder
- HPC Pistolpick
- Silca Rubberhead Keyblanks (100 Blanks)
- ESP PR-13 Professional Lock Pick Set
- Sieveking Products EZ-Pull GM Wheel Puller
- Fort Lock Backer Board Display Panel

Submit your tip and win!

APRIL'S BEST TIP

SAFE MANIPULATION AID

Here's a helpful hint for students
of manipulation like myself. I've
always had trouble reading the
small differences between the
marks on the dial and dial ring to
determine my finer contacts.

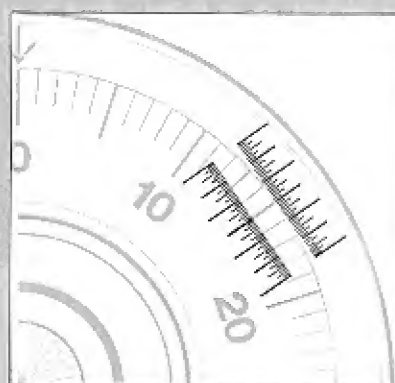


Illustration 1

Looking for a simple,
inexpensive way to solve this
problem, I photocopied a
standard ruler and then using the
reduction feature on the copier, I
reduced the copy of the ruler. I
find that a 50 percent, or better,
reduction of a standard ruler
works best. Particularly for those
stubborn locks.

Then I cut out two of the 1"
sections of my reduced
photocopy, found my contact
point on the lock and taped one
piece of the photocopy to the dial
ring and the other piece to the
dial, using the 1/2" marks on both
to align my manipulation aid.
(See illustration 1.)

This has worked so well for me
that I am going to a printer to have
small stickers made up to keep in
my tool kit.

Lou Frascella,
New Jersey

EDITOR'S NOTE: *This is a
great tip and shows innovative
thinking on Lou's part! For those of
you who may not be aware of it, or
do not want to take the trouble to
"make your own," Lockmasters
offers the "READ-EZE" for about
\$65.00, complete. The biggest
difference that I see is the Read-eze
has a magnetic based magnifying
glass which would be helpful to those
locksmiths, like myself, whose vision
is less acute than it used to be.*

**ALL-LOCK VATS DECODER WINNER
SHIM RENAULT IGNITION**

Maybe it's because I have just been lucky, but I have not had to remove the ignition to a Renault in the six years that I have been a locksmith. That is, until just the other day when customer called and said that the keys (RN30 or X147 blank) to her car had been stolen, and wanted to know if I could install a new ignition for her. It seems a dealer had sold her a new lock, but told her that she would have to get a locksmith to install it.

The information I had on these locks said that the retaining pin was in the rear (facing the dash board) and that the lock had to be turned to between the accessory and run position in order to depress the retainer. I tried (unsuccessfully) to pick the lock to the removal position, and was about to plug in my drill when I took another look at this lock.

Although the face of the plug is slightly larger than the plug itself, I found that with a little patience and a lot of persistence I was able to shim pick the lock from the front. It was

then a simple matter of turning the plug to the removal position, depressing the retaining pin and sliding the lock assembly out of the metal sleeve on the steering column and installing the customers new lock.

Since then, I have come to understand that some Renault models like the Medallion have ignitions that use a lever to engage the steering wheel lock bolt. (The RN-30 key has a slot in the tip that moves this lever back and forth) and if you were to pick this lock, the lever may slide to the rear of the plug. This would prevent a key from being inserted in the keyway. If this should happen to you, simply "fish" the lever forward with a "hook" to the front of the ignition.

John Carmondy
Montana

**HPC PISTOL PICK WINNER
TRU-ARC GM PLUG REMOVER**

I have discovered a fast and inexpensive way to remove the plug from the squeeze type glove box locks that I've encountered on GM cars

when trying to progress a door key.

There is a groove near the rear end of the plug that accommodates two clips that hold the plug very securely. These clips have to be pried away from the plug simultaneously to release the plug.

After several failed attempts using two small screw drivers and probes, I decided that it was time to try something different. My Tru-arc snap ring pliers did the trick. I wedged the tips between the "clips" and the plug popped out into my hand.

Chris Whitney
Texas

**SILCA KEYBLANKS WINNER
MOUNTING TABS**

One evening I received a call asking if I could replace an entrance lock. The caller stated that the lock kept jamming and locking them out of the house. When I arrived and looked over the situation, I noticed that the tip of the latch on the door edge was cocked out about 1/8" and the lock set



SCHWAB CORP.

Fire protection for your vital records.

**Free freight!!
No middle man!!**

[Click here for more information](#)

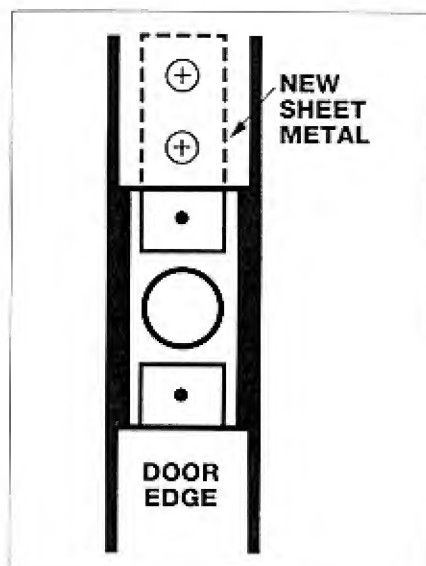


Illustration 2

was loose. After removing the lock, I found that the top tab holding the latch in place had broke away from the door face.

To repair this, I cut a strip of metal from a tin can that was 12" wide by 2" long. I folded the 12" side in half, making the piece 3/4" wide by 2" long and giving the "tab" some meat to allow the screw to "bite". Making sure

that I left the same amount of tab exposed as on the original, I slid my makeshift tab into place behind the door edge and temporarily clamped it with 4" Vise grips.

I drilled two holes about 2" apart to accommodate a #6 x 2" sheet metal screw. (See illustration 2.) I used a counter sink bit on the door edge to allow the screws to sit flush, used Lock-Tite on the screws and installed them. I also used Lock-Tite on the screws that held the knob-set in place since I have found that the flexing of foam filled metal doors will tend to loosen screws if you don't secure them.

Another problem with this type of door is the stripping of the screw holes on the latch mounting tabs. I have found two ways to remedy this problem. The first is you can purchase some auto body clips used to receive sheet metal screws. Just slide the clip on the mounting tab for the latch. Make sure that the clip's bent edge is facing toward the door edge so that the latch will seat flatly on the tabs surface. (See illustration 3.)

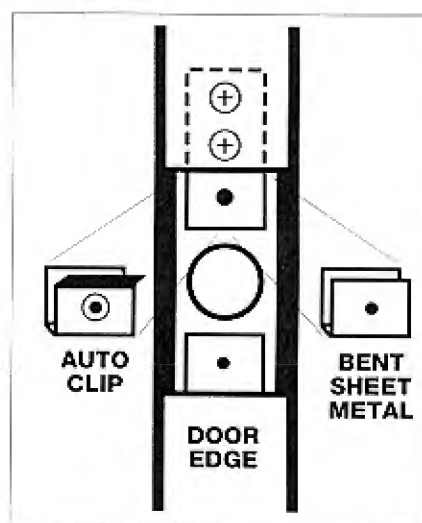


Illustration 3

The second remedy is to bend a piece of sheet metal to form your own clip and drill for the proper sized screw. Don't forget to put the Lock-Tite on the screws to prevent them from coming loose.

Harold Sparrow, Sr.
Maryland

EDITOR'S NOTE: Like a lot of locksmiths, Harold showed his creative streak by utilizing the materials at hand

SRI
SECURITY
RESOURCES INC.

SRI and Steve Young are working together to bring you the best in locksmith tools and supplies.

[Click here for more information](#)

to effect a satisfactory repair to this door. For those of you who might not be aware of it, Afco Security Products sells mounting tabs (Part #AFC-12 in pairs) and Reinforcing Brackets for tubular locks in hollow metal doors (AFC-11). Cost is about \$2.50 for each number.

ESP LOCK PICK WINNER STORM DOOR REPAIR

After having completed the original work that the customer requested, they asked me if I "could take a look at their storm door." Apparently the latch would not operate from the outside. I disassembled the latch and found that the tailpiece was worn and was too short to operate the mechanism.

Since I did not have the proper lock for a replacement, and I wanted to complete the job and leave the customer satisfied, I came up with the following solution:

I removed the worn tailpiece and cut it flush with the base. (See illustration 4.) I then found a long 8-32 screw and drilled and tapped the base to accept the screw. Next, I cut off the

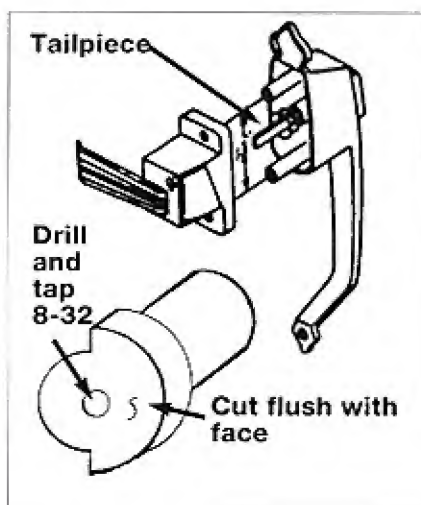


Illustration 4

head of the screw, filed it smooth, put on a few drops of Lock-Tite, installed the screw in the base adjusted it to the proper length and re-installed the latch on the door.

This repair took a little longer than installing a replacement latch, but I was able to complete the job and did not have to make a return visit. More importantly, the customer was very satisfied.

M. Avena
New York

E-Z PULL GM WHEEL PULLER WINNER REPLACING GM SECTOR GEAR

I had a call to repair or replace the ignition on an '86 Buick (B&S part #700582). After "tearing down" the wheel and removing the old lock I noticed two things: The gear on the back of the lock had come off, and I did not have a lock on my truck to replace the broken one.

So, I put a little Super Glue on the shaft and replaced the gear. Then I drilled a small hole through the gear and into the shaft. After cutting a roll pin to the proper length, I put a drop of super glue in the hole, and inserted the roll pin to make sure that the gear stayed on the shaft.

This would probably work on most ignitions with the gear on the end. Although a new lock would have been better, this worked well for an emergency.

P. McConnell
California



**ASP - Your Auto Service
Center for the World**

[Click here for more information](#)



**We have it all.
Quality, Value,
& Service.**

[Click here for more information](#)

FORT LOCK DISPLAY BOARD WINNER GAS CAP REMOVAL

Having sold several cases of the type gas cap lock containing a key compartment and locked by a three wheel combination, I was finally called out to open one.

I found that if you drill a 1/8" hole (very carefully) anywhere outside the little ring containing the wheels, and then screw in a small sheet metal screw, you will be able to unscrew the cap. (See photograph 5.)

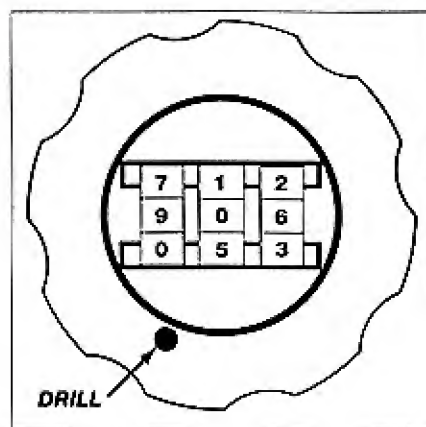


Illustration 5

What you do is lock the outer and inner parts together with the screw. After removal, either replace the cap with a new one, or attempt to determine what caused the failure.

William B. News, Sr.
Pennsylvania

EMERGENCY DRIVER BAR FOR IC CORES

Here's a great way to recycle some of those worn or mangled Kwikset cylinder removing tools.

Occasionally, on a job, I come across I-Core knobs or lever sets without a core. Frequently, the driver bar is missing as well. Providing a new core for the lock is no problem, but the driver bar can be. Especially since the customer wants the door fixed as soon as possible.

Instead of stealing a driver bar from a lock in my stock, I make one from an old Kwikset tool. Simply cut 1-3/4" off the end then slot the cut end 3/4" deep by 1/4" wide. (See illustration 6.) File off the burrs and put that lock back into service.

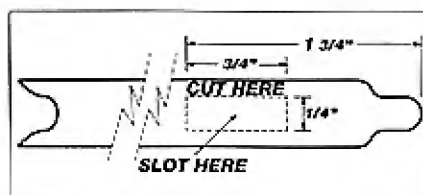


Illustration 6

David Stone, CRL
Illinois

KWIKSET SPINDLE TOOL

Whenever I use the Kwikset plug puller to remove a plug for opening or

rekeying, I carry a 400 series plug with a random cut key and the appropriate pins super-glued to the plug. When I pull the plug, I use the keyed plug to rotate the spindle to unlock the door. It's quick.

Jerry Guevara
Colorado

PUTTY KNIFE CAR OPENING TOOL

I think that every car opening kit should be equipped with a common putty knife.

Continued on page 111



*The Innovation You
Expect, with the
Flexibility You Need!*

[Click here for more information](#)

BITS & PIECES

Informative Tidbits for the Security Industry

Greg Voorhees
of Lock & Key
Service in
Hartford, Alabama,
also a Master
Electrician, read
*The National
Locksmith* article
on setting trucks
up for running
power tools (Put 'Power' In Your
Service Vehicle, November 1993), and
forwarded this little formula for
determining wire gauge size based
on your power requirements.
According to Greg this formula is
from the National Electrical Codes.



by
Tom Seroogy

The formula is $CM = 2 \times K \times L \times I / VD$
2 = The number of conductors (two
in this case).

K = Is a constant dependent on the
material of the conductor. Copper wire
is given a value of 10 and Aluminum
wire is given a value of 20.

L = Length of the wire needed.

I = The current requirements in
amps.

VD = Voltage Drop of 3 percent.

As an example, if we are putting two
machines in our truck and want a
circuit with a maximum of 15 amps at
12 volts, we would set the formula up
like this:

2 = would remain two because we
are running two conductors.

K = 10 because we are using copper
wire.

L = 10 because we need 10' of wire.

I = 15 because we are needing 15
amps of current.

VD = .36 because this is 3 percent of
12 volts.

Now, $CM = 2 \times 10 \times 10 \times 15 / .36$; or $CM = 3000 / .36$; or $CM = 8333.33$.

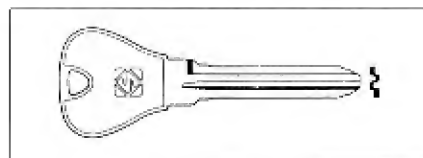
The CM is now applied to a chart to
determine the correct wire gauge. For
CM up to 4110 use #14 gauge wire, for
CM up to 6530 use #12 gauge wire, for
CM up to 10,380 use #10 gauge wire.

Because the CM for our example is

8333.33, we need to use at least #10 wire.
Thanks Greg!

Some of you may have already
noticed, but the VATS key is no longer
supplied with the VATS resistance
number stamped on the knockout.
The only indication for its value is on
the package it comes in. To make it
easier to identify, Fred Kosloske,
Briggs & Stratton engineer,
recommends wrapping a piece of tape
around the blade to mark the key.

The new 1994 Ford Aspire has just
hit the US and its said that they are
using a new ignition, new key and, of
course, a new key "B" code series.
While codes are not yet available,
keyblank numbers are: Ilco EZ H70
and Silca FO34. (See illustration 1.)



1. The new Ford Aspire keyblank.

Honda has also made changes. The
new Passport is using Isuzu locks and
the D4001-6000 code series used on
the Isuzu Rodeo. While the keyblank
number for this model is not known
at the time of this writing, the
standard Taylor X198 used on the
Isuzu is said to fit. When cutting a key
use the Curtis 47 degree clipper and
the GM5 cam and GM5B carriage. If
using a HPC 1200CM use the XP89
code card and CW1011 cutter.

Of course we can't forget GM, it's
been 6 months and we need more
changes, so, here they are: The 1995 J
and N body vehicles (currently the
Cavalier, Grand Am, Achieva and Sky
Lark) are set to become single keyed
cars. About time!

Also, the new Chevrolet Blazer and
Suburban are changing their columns!
While they are turning to the just
released 1994 codes with the ten cut
double sided key, both the column
and ignition cylinder are different than
those used on the 1994 N bodies.
Here we go again!

As if dealing with factory installed
airbags hasn't been enough trouble
for locksmiths, a company has
recently released a new "aftermarket"
airbag for vehicles not originally
equipped with the airbag system. (See
photograph 2.)



2. Aftermarket airbags? You bet.

The SRS-40 is not a full sized airbag
and is meant to reduce the risk of injury
to the driver's head and face. According
to the manufacturer's brochure, this
unit does not meet the federal passive
restraint system standards set forth in
the federal motor vehicle safety act (49
C.F.R. 571.208).

This unit is sold and installed
through automotive outlets.

Be careful guys, no servicing
instructions are yet available. So, for
your own protection, if the airbag
system you're going to work on is not
factory or is not known to be factory,
be careful. It is best to pass on such a
job until the unit can be positively
identified or the exact servicing
procedures are available.





by
Tom Mazzone

CONQUERING GM IGNITIONS

"The PS1 is a GM pick and decoder tool that eliminates the task of steering column disassembly."

General motors sidebar ignition and door locks have for a good many years been the most pick resistant on the auto market. Their unique design not only discourages picking but success with impressioning is limited as well. Steering column disassembly for direct code reading has long been the method of choice for locksmiths when generating a first key for a GM car or truck.

A-1 Security Products of Richmond, Virginia, however, has developed a GM pick and decoder tool that eliminates the task of steering column disassembly. The tools are packaged in a very durable plastic case with dividers for the specific components.

A full set of directions is also included.

The name of this tool is the #PS1. (See photograph 1.) It comes with two types of tension probes for applying pressure to the sidebar. One for standard ignition locks and the other for VATS/Pass ignitions.

Also included in the kit is the two part decoder, a diamond pick, a small punch, and an ample supply of "speedbond" adhesive and activator. The use of "speedbond" follows later in this article.

The part of the picking and decoding procedure which may put off most locksmiths comes in the very



1. A-1 Security Products' PS1 GM lock decoder kit.

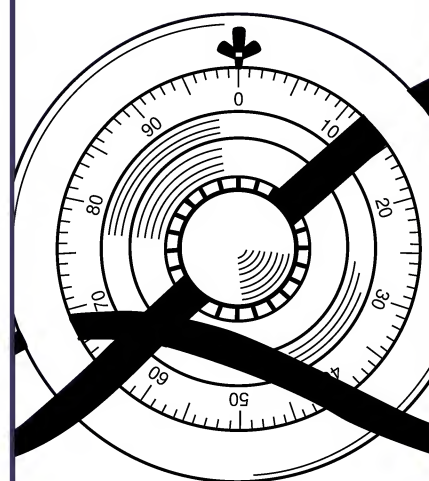
beginning. Due to the need to apply pressure to the sidebar to allow the lock to be picked, the "ears" of the lock must be removed. Exercise care when doing this step because a quality repair depends on it. These same "ears" are later reinstalled on the lock.



HPC, Inc.
Designing Excellence and
Manufacturing Quality
since 1956

[Click here for more information](#)

Lockmasters has a
44 year history of
training security
professionals.



[Click here for more information](#)



2. Removing the ignition's "ears."



3. Inserting the tension probe to apply pressure on the sidebar.

(See photographs 2 and 3.)

It is at the 9 o'clock position of the lock cylinder that one of the specially designed probes is inserted to put pressure on the sidebar. With the probe in position and pressure being exerted, the wafers are gently raked to the picked position. Start from the outer wafers and work your way inward. As the wafers engage the sidebar, you will feel the tension probe slide further into the sidebar broaching. When all six wafers are engaged to the sidebar, the lock is picked. (See photograph 4.)

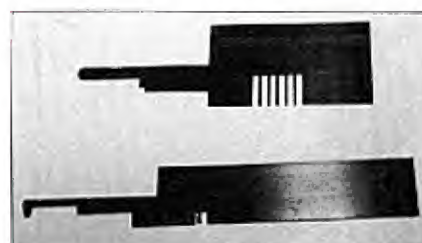


4. Raking the wafers.

Once the sidebar has yielded to picking, the ignition lock is placed in the "ON" position to give better results when decoding. The decoder is a two part tool. One part locates which wafer cell is being decoded while the other does the depth reading. (See photograph 5.)

The depth scale of the decoder is referred to in the instructions as part "A." This is the first of the two parts to be inserted. There are five graduation marks on this tool which represent the five different cut depths. There are also six slots in the lower portion of this tool to locate the spacing.

Part "B" is inserted over part "A" in the lock cylinder. (See photographs 6 and 7.) Part "B" has a locating tab on



5. Measuring the wafers require part "A" and "B," pictured here.



6. Inserting part "A" of the reader into the lock.



7. Inserting part "B" into the lock.

the lower portion that fits into the slots of part "A" to locate the correct wafer cell. There is also a curved tip on the end of part "B" to locate the height of the picked wafer in that wafer's cell.

Insert part "A" into the picked cylinder. Make sure that it is in all the

medeco[®]
HIGH SECURITY LOCKS

**The market leader
in locking systems
for security, safety,
and control.**

[Click here for more information](#)

way and is seated. Insert part "B" over part "A" with the locating tab in the slot closest to the lock cylinder face. This is space number six. While you can start at either end, for the purpose of this article we chose to start at position six. Remaining positions are then determined by working outward from position six.

Slide part "B" down gently in the wafer cell until it comes in contact with the wafer. Raise the handle until it is parallel with part "A." At this point, read the graduated line scale to

determine the depth for that space. This step requires practice in order to achieve success. The directions suggest the use of an optivisor for those with weak eyesight.

After recording the first depth, repeat these steps to determine the five remaining positions. Using the rules for Briggs & Stratton locks will help you determine a depth if you are unsure of a particular cut depth. Use your choice of code cutting equipment and code cut the key.



8. Applying adhesive to the lock's "ears."

When reattaching the lock "ears," follow the directions for the use of "speedbond" very carefully. Make sure that the ears are properly aligned and take care not to get any adhesive into the keyway. (See photograph 8.)

According to the instructions, you can feel comfortable with leaving the job five minutes after application of the adhesive. While the adhesive worked well for me (as the



9. The lock, complete and ready to use.

instructions indicated), I can't predict the longevity of this type of application. (See photograph 9.)

The #PS1 is a well made tool that is very affordable in price. Like any tool, it requires a degree of practice before it is taken into the field. My only reservation is the removal and replacement of the lock "ears." If good adhesion is not successful, it could lead to a call back that could lead to lock cylinder replacement. For this reason, follow the directions carefully and precisely.

For more information contact A-1 Security Manufacturing Corp., 3528 Maryland CT., Richmond, VA 23233, 804-747-0095.

NATIONAL AUTO LOCK SERVICE, INC.

National Auto Lock Service, Inc. offers a wide range of equipment and services for the Automotive Locksmith. From tools and hard to find key blanks to transponder programming, we can take the mystery out of car service. We accept credit card orders, and can ship COD. Contact us for the latest in automotive technology.

www.laserkey.com

MASTERKEY WITH MULTIMASTER 3.0

"Multi-Master 3.0 is an easy to set up and use number crunching 64 page format masterkey program."

by Dale Libby

Finally, an easy to use and understand masterkey system for locksmiths to use on their computers.

I have reviewed several computer generated masterkey systems. Some have been too complex for me to understand right off, and others were not user friendly, or the language used was vague. I do not like systems that require me to change the printer

string in order for the printer to compress the printing.

Multi-Master 3.0 is an easy to set up and use number crunching 64 page format program. On each page generated are all the possible combinations set up within the guidelines set by your top master key and MACS and the key system that you choose.

charts that can be generated and the cover sheet.

The cover sheet uses the name of the client, the file name, the date printed, number of keys printed, usable change keys, unusable keys, etc.

The second part of the cover sheet shows the factory depths of the manufacturer of the key chosen. It has the cutting measurements, the root depth cuts, the bottom pin lengths and the master pin sizes. These are provided for reference only, and changes can be noted by the end user. (See illustration 1.)

The next part of the program I liked is the pinning charts that are

NATIONAL LOCKSMITH DEMO DISK

CLIENT: test
FILE NAME: NOT SAVED

DATE PRINTED: 11 04-1993
PAGES PRINTED: 1 - 2
CHANGE KEY #s PRINTED ~ 128
USABLE CHANGE KEYS: 114
UNUSABLE CHANGE KEYS: 14

SCHLAGE
DEPTHS: 0-9 INCREMENTS: .015
SAFETY FACTOR: 7
KEYWAY USED: Schlage "C"
THEORETICAL MASTER ~ 1 3 2 1 3

SHOULDER TO FIRST CUT: .231 "
CENTER TO CENTER: .156"

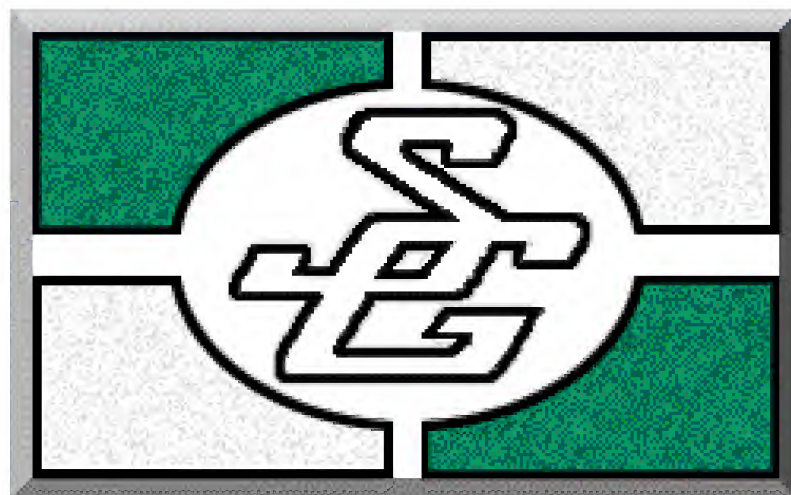
	ROOT DEPTH	BOTTOM PINS	MASTER PINS
# 0	.335	.165	
# 1	.320	.180	
# 2	.305	.195	.030
# 3	.290	.210	
# 4	.275	.225	.060
# 5	.260	.240	
# 6	.245	.255	.090
# 7	.230	.270	
# 8	.215	.285	.120
# 9	.200	.300	

CHANGE KEYS EXCEEDING THE SAFETY FACTOR WILL BE FLAGGED WITH AN X

NOTE: Because of inconsistencies in both published information and actual measurements, depth, spacing and pin size specs are provided for reference only.

Illustration 1

All combinations are listed, and the ones that are unusable are crossed out. For instance in the biting 35691 the maximum adjacent cut difference is too large between the last two cuts - 9 to 1. The two items about the program that I particularly like are the pinning



**Make Sargent & Greenleaf's
Comptronic locks your choice for
electronic safe locking solutions.**

[Click here for more information](#)



It's not
safe
unless
it's
Schwab
Safe.

[Click here for more information](#)

SAMPLE PINNING CHARTS

1) 35435 ----- 13 213 22222	5) 35 6 35 ----- 1 3213 22422	9) 35835 ----- 13213 22 6 22	13) 35035 ----- 13013 22222	<Change Keys <Bottom Pins <Master Pins
2) 35437 ----- 13213 2222 4	6) 356 37 ----- 13213 22424	10) 358 37 ----- 13213 22624	14) 35037 ----- 13013 222 24	<Change Keys <Bottom Pins <Master Pins
3) 35439 ----- 13213 22226	7) 35639 ----- 13213 22426	11) 35839 ----- 13213 22626	15) 35039 ----- 13013 22226	<Change Keys <Bottom Pins <Master Pins
4) 35431 ----- 13211 22222	8) 3 5631 ----- 1321 1 22422	12) 35831 ----- 13211 22622	16) 35031 ----- 13011 22222	<Change Keys <Bottom Pins <Master Pins
17) 35455 ----- 13213 22242	21) 35655 ----- 13213 22442	25) 35855 ----- 13213 22642	29) 35055 ----- 13011 22242	<Change Keys <Bottom Pins <Master Pins
18) 35457 ----- 13213 22244	22) 356 57 ----- 13213 22444	26) 35857 ----- 13213 22644	30) 35057 ----- 13013 22244	<Change Keys <Bottom Pins <Master Pins
19) 35459 ----- 13213 22246	23) 35659 ----- 13213 22446	27) 35859 ----- 13213 22646	31) 35059 ----- 13013 22246	<Change Keys <Bottom Pins <Master Pins
20) 35451 ----- 13211 22242	24) 35651 ----- 1321 1 22442	28) 35851 ----- 13211 22642	32) 35051 ----- 13011 22242	<Change Keys <Bottom Pins <Master Pins
33) 35475 ----- 13213 22262	37) 35675 ----- 13213 22462	41) 35875 ----- 13213 22662	45) 35075 ----- 13013 22262	<Change Keys <Bottom Pins <Master Pins

Illustration 2

generated. They have the number of the change key, the bottom pins and the master pins shown in a logical order. Easy for me to do, as opposed to the positional key change charts that are used in some other systems. (See illustration 2.)

Also, on the individual sheets are shown the horizontal and vertical master keys, as well as the group masters. These are inherent in all 64 page systems, but are listed and make teaching the secrets of this type of

system to a novice easy. (See illustration 3.)

Another nice feature is the location inventory function which gives the locksmith the ability to enter the locations of where the cylinders are installed and the change keys that fit each cylinder. This list can be printed out for your convenience.

For the customer, the you can provide a client location list. This is a

NATIONAL LOCKSMITH DEMO DISK

65) 38543	69) 38743	73) 38943	77) 38143	Horizontal Master V
66) 38545	70) 38745	74) 38945	78) 38145	
67) 38547	71) 38747	75) 38947	79) 38147	38341
68) 38549	72) 38749	76) 38949	80) 38149	-----
38541	38741	38941	38141	Group <Masters
81) 38563	85) 38763	89) 38963	93) 38163	Horizontal
				Master V
82) 38565	86) 38765	90) 38965	94) 38165	
83) 38567	87) 38767	91) 38967	95) 38167	38361
84) 38569	88) 38769	92) 38969	96) 38169	-----
38561	38761	38961	38161	Group <Masters
97) 38583	101) 38783	105) 38983	109) 38183	Horizontal Master V
98) 38585	102) 38785	106) 38985	110) 38185	
99) 38587	103) 38787	108) 38987	111) 38187	38381
100) 38589	104) 38789	109) 38989	112) 38189	-----
38581	38781	38981	38181	Group <Masters
113) 38503	117) 38703	121) 3x8x9x0x3125	38103	Horizontal Master V
114) 38505	118) 38705	122) 3x8x9x0x5	126) 38105	
115) 38507	119) 38707	123) 3x8x9x0x7	127) 38107	38301
116) 3x8x5x0x9	120) 3x8x7x0x9	124) 3x8x9x0x9	128) 3x8x1x0x9	-----
38501	38701	3x8x9x0x1x	38101	Group <Masters
38521	38721	38921	38121	Vertical <Masters

Illustration 3

list of all the change keys that have been used and their locations.

The instructions are good, but must be read fully before installing or using this system. The program will make a directory for you, or install in a "CURRENT" directory. This is like looking for the "ANY KEY" on a keyboard. Sometimes the directions will say "Strike ANY KEY." "Any Key" means any key on the keyboard, usually the ENTER key works fine.

When the directions said that it would install in "CURRENT" directory, I thought it would make a directory called "CURRENT" and install it. After figuring out what I did wrong, and erasing the program from my DOS directory, I reinstalled it using the directions in the next paragraph, which states, type INSTALL KEYS on the C: drive. What this does is to have the program make a directory called "KEYS" on your C

drive and then install the program in that subdirectory. The word "KEYS" here is simply the directory name, any other name or word can be used in its place. Works great.

This system works for a 5, 6, or 7 pin systems, and will do the A2 Best type interchangeable core system, as well as Medeco and Emhart high security systems. The program also correctly positions the cuts for the 5, 6, or 7 pin master.

Anyone familiar with this 64 page system will like the organization, easy set up and its reasonable \$95.00 price. This system requires the use of master pins in all chambers, and none of the master key cuts will appear on a change key. I look forward to their hold and vary or rotating constant system as well as Multi-Core which does all the interchangeable core systems. Compute and PROSPER!!!!

Multi-Master 3.0 is a product of DLA Security Systems, Inc., 629 Kimball Ave., Westfield, NJ, 07090, 908-233-7755.



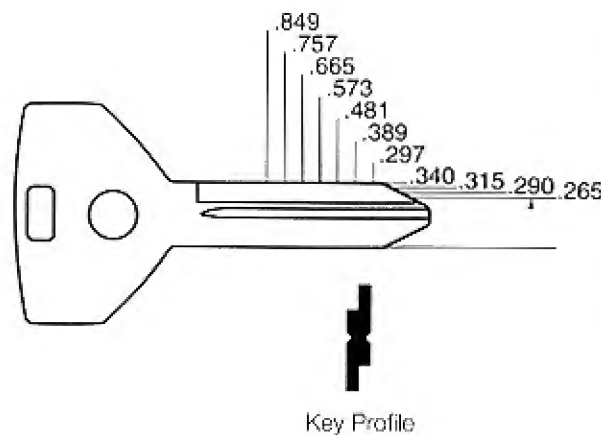
SRI
SECURITY
RESOURCES INC.

**SRI and Tech Train
Productions are the
automotive specialists -
your best source for
automotive tools, manuals,
and videos.**

[Click here for more information](#)

KEY CODES

1994 Chrysler L Series L0001-L3580, Part 1



HPC 1200CM

Continental Code Card - X80
Cutter - CW1011
Stop - Ford 5-cut Tip Stop

Farnon

Cut start - .051
Cut to cut - .092
Cutter - FC8445
Key Clamping - Ford 5-cut
Spacing Clip

Curtis

Cam - Chry 4
Carriage - Chry 4B

KEYBLANKS

B&S 596504
Silca CY22
Curtis Y157
Iico P1794
EZ Y157
Jet Y157

Spacing and Depths using Universal Micrometer Card #58:

	Spacing	Depth
1	.101	.340
2	.193	.315
3	.285	.290
4	.377	.265
5	.469	
6	.561	
7	.653	

L0001 1242131	L0025 4422243	L0049 1132231	L0073 2344233
L0002 4342124	L0026 3342311	L0050 1133134	L0074 2233113
L0003 1223121	L0027 3242132	L0051 2313242	L0075 4322423
L0004 3443311	L0028 2432424	L0052 4334213	L0076 3224211
L0005 4324234	L0029 4423121	L0053 3344234	L0077 4442122
L0006 3111232	L0030 2442231	L0054 3423431	L0078 4342321
L0007 1133443	L0031 2423313	L0055 3122343	L0079 3223244
L0008 1342213	L0032 1342231	L0056 4331211	L0080 4213321
L0009 2134244	L0033 4421331	L0057 1132324	L0081 4324223
L0010 4231312	L0034 4331243	L0058 1243423	L0082 1224433
L0011 2331243	L0035 1242234	L0059 4224233	L0083 4211332
L0012 2231344	L0036 4311323	L0060 1223134	L0084 1233443
L0013 2231243	L0037 2132342	L0061 3224243	L0085 3123443
L0014 1132322	L0038 2131332	L0062 1322113	L0086 1323442
L0015 2134442	L0039 2343121	L0063 2113421	L0087 4331321
L0016 2313213	L0040 2243311	L0064 2134311	L0088 4423332
L0017 3121323	L0041 2234421	L0065 2344322	L0089 4421323
L0018 1134443	L0042 4221123	L0066 3324344	L0090 1332244
L0019 4312313	L0043 3112213	L0067 1342221	L0091 1322424
L0020 2243324	L0044 1244431	L0068 3132221	L0092 2344221
L0021 1213421	L0045 4243332	L0069 2333244	L0093 4422312
L0022 4244312	L0046 1122243	L0070 4421322	L0094 4423433
L0023 2224331	L0047 4312133	L0071 1324332	L0095 2442324
L0024 2331244	L0048 3112133	L0072 1331132	L0096 1324213



Chrysler L Series L0001-L1790

L0097	3212443	L0139	1134232	L0181	2133342	L0223	1224343
L0098	2342133	L0140	2132434	L0182	4423223	L0224	4332124
L0099	2243331	L0141	2311323	L0183	4423132	L0225	2231211
L0100	4322131	L0142	3244343	L0184	1313423	L0226	2422113
L0101	2432421	L0143	1221312	L0185	1344233	L0227	2123313
L0102	4224324	L0144	4323324	L0186	2432211	L0228	3422133
L0103	2344431	L0145	1231342	L0187	2221344	L0229	4344211
L0104	2234324	L0146	3234443	L0188	1344224	L0230	2322343
L0105	1321244	L0147	1221323	L0189	4223424	L0231	4422332
L0106	1133442	L0148	2124423	L0190	2423443	L0232	1242132
L0107	4421224	L0149	1244313	L0191	4311343	L0233	1244232
L0108	4431243	L0150	2442133	L0192	1331224	L0234	1342443
L0109	1113244	L0151	3423312	L0193	2312312	L0235	1342342
L0110	4432342	L0152	1224344	L0194	2331134	L0236	3442432
L0111	3432243	L0153	2344432	L0195	4313422	L0237	1322324
L0112	4233122	L0154	2231134	L0196	1344422	L0238	2111324
L0113	2312442	L0155	4422433	L0197	2343442	L0239	4213212
L0114	1322112	L0156	2334232	L0198	4211231	L0240	1132244
L0115	2112134	L0157	2343224	L0199	4342223	L0241	2243433
L0116	4242133	L0158	2113134	L0200	4223311	L0242	3332244
L0117	1133213	L0159	3112343	L0201	4433124	L0243	4422134
L0118	1244224	L0160	2323342	L0202	3422311	L0244	3122323
L0119	4432432	L0161	3443431	L0203	2233434	L0245	2313122
L0120	3312134	L0162	4221312	L0204	3442134	L0246	1243132
L0121	2442323	L0163	2323112	L0205	4434213	L0247	2213231
L0122	1232434	L0164	4423331	L0206	1232431	L0248	4342323
L0123	2244433	L0165	2431211	L0207	1334342	L0249	2313223
L0124	2444231	L0166	1342113	L0208	1234422	L0250	1242211
L0125	2232331	L0167	3312242	L0209	1342432	L0251	4213211
L0126	3432442	L0168	2443431	L0210	3423443	L0252	1231132
L0127	4431221	L0169	3221124	L0211	3421322	L0253	4221133
L0128	2442331	L0170	3232434	L0212	4224231	L0254	2432231
L0129	2342331	L0171	3321243	L0213	2221311	L0255	4333242
L0130	2443334	L0172	4422121	L0214	2212133	L0256	4432331
L0131	2321324	L0173	3431124	L0215	2223443	L0257	2344234
L0132	3112432	L0174	1343442	L0216	4433212	L0258	3131224
L0133	3212434	L0175	4312242	L0217	1334443	L0259	3342244
L0134	3132442	L0176	2443213	L0218	4243231	L0260	2113123
L0135	4222133	L0177	3113324	L0219	3123234	L0261	1332422
L0136	4211322	L0178	4431342	L0220	3424331	L0262	4443121
L0137	1313221	L0179	2213343	L0221	1334423	L0263	2443322
L0138	2332431	L0180	2344433	L0222	3213213	L0264	4324322

Chrysler L Series L0001-L1790

L0265 4432213	L0284 4234423	L0303 4231243	L0322 1311322
L0266 3424332	L0285 3221332	L0304 2113312	L0323 2342313
L0267 4223233	L0286 4443223	L0305 4234232	L0324 1124213
L0268 2111323	L0287 3123132	L0306 1124312	L0325 4332134
L0269 2312124	L0288 1132134	L0307 1113242	L0326 3442421
L0270 4312132	L0289 1231213	L0308 3122131	L0327 2131324
L0271 3244322	L0290 4311342	L0309 4421313	L0328 2424334
L0272 1213244	L0291 3222131	L0310 2322133	L0329 3423224
L0273 4223421	L0292 2244323	L0311 4433112	L0330 4322342
L0274 2313224	L0293 2233424	L0312 4232133	L0331 3132122
L0275 3421112	L0294 2313243	L0313 4231242	L0332 1342343
L0276 4324421	L0295 2324344	L0314 3321324	L0333 1342112
L0277 3111242	L0296 3344231	L0315 1212231	L0334 2334312
L0278 3244221	L0297 4233132	L0316 2112124	L0335 4423312
L0279 3113243	L0298 4243312	L0317 4343124	L0336 2343124
L0280 2313312	L0299 4443232	L0318 1333122	L0337 3444331
L0281 2443243	L0300 2324431	L0319 2323424	L0338 3443421
L0282 4243224	L0301 2113243	L0320 4222434	L0339 2233244
L0283 2242113	L0302 4423233	L0321 1342442	L0340 3224311



***ASP - Your Auto Service
Center for the World***

[Click here for more information](#)



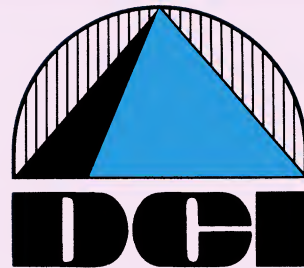
Chrysler L Series

L0001-L1790

L0341	4343112	L0383	3423442	L0425	1332424	L0467	4431123
L0342	2213433	L0384	3324223	L0426	3122312	L0468	1244211
L0343	4434332	L0385	4331213	L0427	4431213	L0469	3424323
L0344	2232434	L0386	2231332	L0428	3213124	L0470	3113234
L0345	4321134	L0387	3421124	L0429	4312423	L0471	1234242
L0346	3222343	L0388	2321332	L0430	2431221	L0472	4223244
L0347	2443124	L0389	4223324	L0431	3224334	L0473	2133134
L0348	2444312	L0390	4213123	L0432	2121321	L0474	3211312
L0349	1324343	L0391	2132442	L0433	1334242	L0475	3431223
L0350	4234431	L0392	4323243	L0434	3443223	L0476	3242331
L0351	2442311	L0393	2211243	L0435	2321312	L0477	2131321
L0352	3124343	L0394	4321132	L0436	1313321	L0478	3131242
L0353	1131234	L0395	2134232	L0437	1312232	L0479	2433423
L0354	3313212	L0396	4234332	L0438	3442231	L0480	3423112
L0355	3224432	L0397	4321323	L0439	4233244	L0481	2223134
L0356	1132344	L0398	3344324	L0440	1332344	L0482	4324323
L0357	3431231	L0399	3224324	L0441	4332442	L0483	2113244
L0358	2131232	L0400	4213134	L0442	2444332	L0484	2312213
L0359	3242442	L0401	3134434	L0443	1223313	L0485	2443121
L0360	4232211	L0402	1332124	L0444	1124344	L0486	4224213
L0361	3244223	L0403	4434231	L0445	3442323	L0487	1113224
L0362	2334423	L0404	1312422	L0446	2431324	L0488	1123134
L0363	2313322	L0405	3134443	L0447	2232344	L0489	3244432
L0364	1343423	L0406	2124342	L0448	3134223	L0490	1343342
L0365	3311243	L0407	1224442	L0449	3133424	L0491	2321342
L0366	2132344	L0408	2433213	L0450	2423331	L0492	4221244
L0367	2132234	L0409	3243231	L0451	4334211	L0493	2322433
L0368	1331244	L0410	3121331	L0452	4332132	L0494	2133424
L0369	1134322	L0411	3132424	L0453	4342234	L0495	2343422
L0370	4213312	L0412	2231231	L0454	1222313	L0496	3123231
L0371	4244311	L0413	2342343	L0455	4431312	L0497	2443242
L0372	1232443	L0414	3113212	L0456	4423422	L0498	3213422
L0373	2212443	L0415	1333224	L0457	4322132	L0499	2243131
L0374	4233231	L0416	2421132	L0458	1324313	L0500	2422133
L0375	1123224	L0417	4334242	L0459	4321332	L0501	2423121
L0376	2421343	L0418	2132431	L0460	2244213	L0502	2443433
L0377	4422431	L0419	2133132	L0461	3122432	L0503	3424224
L0378	2332324	L0420	2113242	L0462	3442342	L0504	3224244
L0379	1132442	L0421	2123134	L0463	3131122	L0505	2113124
L0380	3131243	L0422	3323424	L0464	2134434	L0506	4222443
L0381	2312112	L0423	3133122	L0465	4221323	L0507	1234342
L0382	2242431	L0424	2432124	L0466	4313224	L0508	4312123

Chrysler L Series L0001-L1790

L0754 4243122	L0774 4343321	L0794 4221233	L0814 3431224
L0755 4213244	L0775 4431231	L0795 2133234	L0815 4433311
L0756 1243224	L0776 4234331	L0796 2313212	L0816 3423122
L0757 1323342	L0777 1334312	L0797 2431213	L0817 1342324
L0758 2431113	L0778 4443313	L0798 4233242	L0818 4313321
L0759 2243132	L0779 1131332	L0799 3132434	L0819 3213113
L0760 1224312	L0780 1311324	L0800 2224443	L0820 2424324
L0761 2344213	L0781 3132123	L0801 4213422	L0821 3422442
L0762 1133242	L0782 4223234	L0802 4443123	L0822 3334242
L0763 4231211	L0783 1342232	L0803 4342221	L0823 4313423
L0764 1221244	L0784 3113423	L0804 1344322	L0824 1244221
L0765 4211324	L0785 2134234	L0805 1213312	L0825 2211324
L0766 2113231	L0786 3121224	L0806 4443132	L0826 1343121
L0767 4421221	L0787 3322134	L0807 4343122	L0827 4242343
L0768 4321131	L0788 2213124	L0808 1242133	L0828 4244213
L0769 3213431	L0789 3242134	L0809 4324243	L0829 3244242
L0770 4312332	L0790 2131223	L0810 4311312	L0830 1321321
L0771 2443311	L0791 1113223	L0811 2121342	L0831 1224334
L0772 4433423	L0792 1113234	L0812 4231212	L0832 4244313
L0773 3312434	L0793 4312421	L0813 4322231	L0833 2134432



***We have it all.
Quality, Value,
& Service.***

[Click here for more information](#)



Chrysler L Series

L0001-L1790

L0834	1323112	L0876	2342342	L0918	3332442	L0960	4422131
L0835	4421311	L0877	4322442	L0919	3221324	L0961	4222113
L0836	1322423	L0878	3444211	L0920	4213223	L0962	4211331
L0837	2334432	L0879	4213342	L0921	2434223	L0963	2324342
L0838	1243334	L0880	4442323	L0922	4324343	L0964	3211323
L0839	4333124	L0881	3123223	L0923	3123421	L0965	1334212
L0840	1331213	L0882	2321132	L0924	2133213	L0966	4233312
L0841	4232134	L0883	2432442	L0925	2321313	L0967	3244323
L0842	1243432	L0884	3243243	L0926	1342223	L0968	4424211
L0843	2331322	L0885	4344322	L0927	2112434	L0969	1131344
L0844	1331342	L0886	4343324	L0928	3113312	L0970	3344311
L0845	3443432	L0887	4323423	L0929	3124224	L0971	2443123
L0846	4212113	L0888	3224423	L0930	4324422	L0972	1331344
L0847	1312322	L0889	1134433	L0931	1134431	L0973	2123443
L0848	4424321	L0890	4321231	L0932	4423133	L0974	2121134
L0849	3224312	L0891	4432312	L0933	1244311	L0975	4421321
L0850	4224342	L0892	2421112	L0934	1323224	L0976	2121331
L0851	2134213	L0893	1321213	L0935	1134424	L0977	2232433
L0852	1242134	L0894	2321344	L0936	2231321	L0978	3421211
L0853	4244332	L0895	3112134	L0937	1232334	L0979	2224433
L0854	3123124	L0896	4432223	L0938	3112424	L0980	3432432
L0855	3242211	L0897	1344423	L0939	1234344	L0981	1234431
L0856	3424432	L0898	1244324	L0940	2231334	L0982	4432211
L0857	1332131	L0899	3334421	L0941	2131331	L0983	4323123
L0858	4424332	L0900	1234243	L0942	2213421	L0984	3213442
L0859	3113342	L0901	1221313	L0943	4243243	L0985	4224343
L0860	3434211	L0902	3312232	L0944	1122213	L0986	4432234
L0861	1344342	L0903	2431121	L0945	3111343	L0987	1213231
L0862	3422243	L0904	4331223	L0946	4342242	L0988	3324312
L0863	1122434	L0905	1122313	L0947	3434432	L0989	2112423
L0864	1322332	L0906	1333442	L0948	3243421	L0990	3324342
L0865	1243324	L0907	3224343	L0949	3121133	L0991	2223133
L0866	3334424	L0908	4232231	L0950	4224243	L0992	3344423
L0867	1223442	L0909	3122443	L0951	3132421	L0993	4212431
L0868	4332244	L0910	2433424	L0952	3121122	L0994	1242213
L0869	4434232	L0911	2433124	L0953	2243234	L0995	4421112
L0870	3442124	L0912	3113242	L0954	4423431	L0996	2432331
L0871	4213112	L0913	4223312	L0955	1342334	L0997	4422423
L0872	2124431	L0914	2421312	L0956	1342244	L0998	3124211
L0873	2432131	L0915	3112423	L0957	4212133	L0999	3122433
L0874	1324233	L0916	4333224	L0958	2234431	L1000	1133423
L0875	1123434	L0917	2231324	L0959	4332344	L1001	1332423

Chrysler L Series

L0001-L1790

Continued from page 100

L1002 4312122	L1044 4442131	L1086 3442433	L1128 1123132
L1003 3233442	L1045 1234424	L1087 1243422	L1129 1224342
L1004 4312342	L1046 3113443	L1088 4324224	L1130 2343421
L1005 3311213	L1047 4221112	L1089 1322243	L1131 3334224
L1006 4234342	L1048 4424323	L1090 3431131	L1132 4311232
L1007 4311212	L1049 1334221	L1091 2324442	L1133 4334421
L1008 1131342	L1050 1343124	L1092 1343243	L1134 3244431
L1009 3443121	L1051 3424221	L1093 3443224	L1135 3312124
L1010 1334243	L1052 4233123	L1094 2443134	L1136 4232342
L1011 2333124	L1053 3424234	L1095 3113322	L1137 3112242
L1012 1134223	L1054 3121123	L1096 3424322	L1138 1131322
L1013 4342122	L1055 3344421	L1097 1134234	L1139 3322443
L1014 1233424	L1056 3342443	L1098 4212442	L1140 1344211
L1015 3421313	L1057 4343242	L1099 2342213	L1141 2311231
L1016 2443232	L1058 3324244	L1100 4231342	L1142 4232334
L1017 4211321	L1059 1323113	L1101 2342311	L1143 4212313
L1018 2244311	L1060 2313443	L1102 3234442	L1144 2433434
L1019 3121344	L1061 3243242	L1103 1244234	L1145 3121244
L1020 1124431	L1062 1324344	L1104 3123134	L1146 2243243
L1021 2243133	L1063 3324213	L1105 4331231	L1147 3123224
L1022 1323122	L1064 1324211	L1106 4222331	L1148 1332443
L1023 1344332	L1065 1312342	L1107 2344312	L1149 3422113
L1024 1242331	L1066 3134211	L1108 1322331	L1150 3442212
L1025 1311332	L1067 2313113	L1109 2321311	L1151 3224313
L1026 4323424	L1068 4342112	L1110 1322121	L1152 3121234
L1027 4213443	L1069 3124443	L1111 3331244	L1153 1132212
L1028 2324423	L1070 1112242	L1112 4222134	L1154 4333424
L1029 4313242	L1071 2442423	L1113 1124224	L1155 3344242
L1030 3224331	L1072 2442134	L1114 1342311	L1156 3421344
L1031 4342213	L1073 1243343	L1115 3342242	L1157 3343124
L1032 2433432	L1074 3224442	L1116 3324421	L1158 3424321
L1033 3443242	L1075 1242311	L1117 4423322	L1159 1344221
L1034 4432431	L1076 1243131	L1118 2232134	L1160 2423434
L1035 2312323	L1077 3132243	L1119 2312311	L1161 4212434
L1036 3121322	L1078 2331213	L1120 1334424	L1162 3244313
L1037 4443233	L1079 3421231	L1121 1124423	L1163 2213432
L1038 4212331	L1080 1122324	L1122 2122131	L1164 4223121
L1039 1344432	L1081 3443321	L1123 4323244	L1165 4243322
L1040 2234424	L1082 2423431	L1124 3432213	L1166 3312213
L1041 2332423	L1083 4421113	L1125 3123311	L1167 2133123
L1042 3423421	L1084 1243211	L1126 3134421	L1168 4421324
L1043 2442312	L1085 2112243	L1127 1134432	L1169 4442123

Chrysler L Series

L0001-L1790

L1170 4342334	L1212 1244332	L1254 2242133	L1296 4324321
L1171 2112132	L1213 4223434	L1255 4434221	L1297 2134344
L1172 4213242	L1214 2133113	L1256 4242231	L1298 3124322
L1173 2124424	L1215 4421124	L1257 4234213	L1299 3243234
L1174 1132342	L1216 3123324	L1258 2433324	L1300 3434422
L1175 4442313	L1217 3211313	L1259 4322134	L1301 1244422
L1176 4321342	L1218 4234312	L1260 4434321	L1302 4312433
L1177 2312324	L1219 1324442	L1261 1243344	L1303 3243112
L1178 3423124	L1220 3124423	L1262 4231324	L1304 2212113
L1179 4224311	L1221 4442112	L1263 2322134	L1305 2324443
L1180 1331124	L1222 2311132	L1264 1343123	L1306 1342433
L1181 4442211	L1223 3423234	L1265 2344212	L1307 1342121
L1182 2212313	L1224 2134223	L1266 3434212	L1308 1124231
L1183 1344323	L1225 4231221	L1267 1232134	L1309 4221131
L1184 3444212	L1226 1112433	L1268 2421321	L1310 1334231
L1185 3324423	L1227 4312343	L1269 4313324	L1311 3343422
L1186 2213133	L1228 3124433	L1270 2433312	L1312 3243224
L1187 3244342	L1229 2431321	L1271 1342321	L1313 1224431
L1188 3221234	L1230 3123431	L1272 3234232	L1314 1134434
L1189 2443421	L1231 4223342	L1273 4442212	L1315 1223112
L1190 1324321	L1232 4234242	L1274 2213443	L1316 3224233
L1191 4224431	L1233 3244331	L1275 2231132	L1317 4231123
L1192 1321344	L1234 1123442	L1276 3311242	L1318 1134331
L1193 1112424	L1235 4443122	L1277 4433324	L1319 3213423
L1194 1121234	L1236 4322324	L1278 2432113	L1320 2323124
L1195 2423432	L1237 4233213	L1279 1344334	L1321 3423243
L1196 2431332	L1238 1342422	L1280 3123312	L1322 2432234
L1197 3243124	L1239 4234212	L1281 3121231	L1323 3221342
L1198 2311322	L1240 4422133	L1282 2424432	L1324 1213342
L1199 4212213	L1241 3112442	L1283 3342134	L1325 2333442
L1200 1231234	L1242 3124442	L1284 1112442	L1326 3243134
L1201 3424313	L1243 1113233	L1285 1133431	L1327 4213431
L1202 4334432	L1244 3343442	L1286 2422434	L1328 2244234
L1203 1331243	L1245 1312424	L1287 3243213	L1329 2421342
L1204 1113424	L1246 4434322	L1288 1244213	L1330 3432443
L1205 1243421	L1247 1342233	L1289 3123422	L1331 4242334
L1206 4231331	L1248 3324231	L1290 4331113	L1332 2224431
L1207 1234442	L1249 3244324	L1291 4422113	L1333 2112424
L1208 1134423	L1250 2132132	L1292 1224231	L1334 2432243
L1209 1324243	L1251 2111322	L1293 3432422	L1335 1313324
L1210 3323224	L1252 2124331	L1294 4324311	L1336 2431232
L1211 2231331	L1253 2231113	L1295 2111243	L1337 1244342

Chrysler L Series L0001-1790

L1338 4322213	L1357 1224243	L1376 1342123	L1395 2211342
L1339 3324422	L1358 4423113	L1377 2321323	L1396 4344232
L1340 3221311	L1359 3444223	L1378 3224421	L1397 4324221
L1341 3433224	L1360 3443124	L1379 1244243	L1398 4443112
L1342 2324343	L1361 3213134	L1380 1213433	L1399 1213423
L1343 1213442	L1362 1224443	L1381 4233423	L1400 2224434
L1344 1324322	L1363 2334431	L1382 2122343	L1401 4223211
L1345 4231121	L1364 3443231	L1383 3121334	L1402 4312443
L1346 4421332	L1365 3134432	L1384 3113431	L1403 3431234
L1347 2213233	L1366 3242113	L1385 2312313	L1404 2421332
L1348 4211343	L1367 4332242	L1386 2331132	L1405 2133122
L1349 1123443	L1368 4442332	L1387 4423221	L1406 4324211
L1350 4221243	L1369 2424421	L1388 1243134	L1407 3422331
L1351 2312113	L1370 3443132	L1389 1213243	L1408 1324334
L1352 2442342	L1371 1334324	L1390 4423224	L1409 2434321
L1353 2234243	L1372 1313212	L1391 4331244	L1410 3421113
L1354 4431334	L1373 1134221	L1392 4221343	L1411 3434223
L1355 2342234	L1374 2443312	L1393 4231322	L1412 4321311
L1356 2332442	L1375 4423321	L1394 1234324	L1413 4212132



***To be a World Leader You Need Quality Products,
Innovative Technology and Strong Partners.***

[Click here for more information](#)



Chrysler L Series L0001-L1790

L1414 4421133	L1456 4233113	L1498 2431312	L1540 1311342
L1415 4432231	L1457 1322432	L1499 3232134	L1541 4312243
L1416 1124223	L1458 2324331	L1500 4432124	L1542 1344433
L1417 3442311	L1459 2124311	L1501 2342113	L1543 3443234
L1418 2422443	L1460 3242431	L1502 3222313	L1544 2421323
L1419 1131324	L1461 3124421	L1503 2132113	L1545 4242312
L1420 1243122	L1462 3123434	L1504 3343242	L1546 4334422
L1421 3242213	L1463 1331322	L1505 2313123	L1547 1221342
L1422 4431132	L1464 2242433	L1506 4343322	L1548 4442133
L1423 4242132	L1465 3223234	L1507 2242334	L1549 3324424
L1424 3212431	L1466 4324313	L1508 3434234	L1550 1323424
L1425 4433224	L1467 2112443	L1509 4234324	L1551 2232334
L1426 2342323	L1468 2342421	L1510 2313423	L1552 4232433
L1427 4233431	L1469 2443234	L1511 3243132	L1553 4244211
L1428 2321124	L1470 3131134	L1512 1244321	L1554 1212434
L1429 1212213	L1471 2211213	L1513 2131334	L1555 1122124
L1430 2213313	L1472 2132211	L1514 3424223	L1556 3312324
L1431 3131234	L1473 1342134	L1515 4312324	L1557 3131221
L1432 1323213	L1474 2124421	L1516 2132233	L1558 3442343
L1433 3132244	L1475 2213424	L1517 4323112	L1559 2123113
L1434 3132431	L1476 4424313	L1518 2242443	L1560 4223331
L1435 4242113	L1477 1332234	L1519 4324433	L1561 4324332
L1436 3311324	L1478 4311322	L1520 2421121	L1562 1113434
L1437 4321324	L1479 1344213	L1521 1312331	L1563 4424221
L1438 4213343	L1480 3243342	L1522 3343224	L1564 4342322
L1439 1223113	L1481 3231243	L1523 3244423	L1565 4221313
L1440 4332423	L1482 3322324	L1524 2113232	L1566 4432132
L1441 4423311	L1483 4422313	L1525 1322342	L1567 3124434
L1442 1133424	L1484 1343113	L1526 4322312	L1568 4342123
L1443 2244423	L1485 2444221	L1527 3432431	L1569 2434422
L1444 4312321	L1486 4224421	L1528 4233234	L1570 2423311
L1445 2243213	L1487 4321113	L1529 3243324	L1571 3313422
L1446 2212343	L1488 3133224	L1530 3124344	L1572 4243313
L1447 1322124	L1489 2433243	L1531 3423123	L1573 4431311
L1448 2123121	L1490 3423121	L1532 4323122	L1574 4431122
L1449 1324424	L1491 4421312	L1533 2421324	L1575 3231223
L1450 2234433	L1492 4332434	L1534 4312422	L1576 3312312
L1451 2323123	L1493 1344243	L1535 1333424	L1577 3113432
L1452 4332342	L1494 4331224	L1536 4223432	L1578 4234211
L1453 3443211	L1495 3213443	L1537 1124443	L1579 3132232
L1454 4442132	L1496 2443342	L1538 4231213	L1580 3213122
L1455 4231231	L1497 2331344	L1539 1333244	L1581 3113223



L1582 4442321
L1583 4311332
L1584 1323243
L1585 1242231
L1586 4443113
L1587 4242313
L1588 4223133
L1589 3344223
L1590 2331321
L1591 2113424
L1592 1134231
L1593 3443232
L1594 1334211
L1595 1331122
L1596 3124331
L1597 4433321
L1598 3213342
L1599 2442211
L1600 2423332
L1601 4313122
L1602 2213113
L1603 3442131
L1604 1312312
L1605 2343123
L1606 1244312
L1607 4231234
L1608 3242432
L1609 3244232
L1610 2344323
L1611 1244233
L1612 4331344
L1613 2322131
L1614 1324331
L1615 3432423
L1616 3344422
L1617 4432243
L1618 1243431
L1619 2342124
L1620 4423213
L1621 2133131
L1622 2134212
L1623 3211242
L1624 1243243
L1625 1133434
L1626 3433442

medeco[®]
HIGH SECURITY LOCKS

**Integrity.
Ingenuity....
security solutions.**

[Click here for more information](#)



Chrysler L Series

L0001-L1790

Continued from page 107

L1627	3312132	L1668	4231332	L1709	4243232	L1750	3342231
L1628	3332424	L1669	4244231	L1710	2313211	L1751	2124442
L1629	1234432	L1670	2243124	L1711	3434431	L1752	4223442
L1630	3442243	L1671	2431233	L1712	4424231	L1753	3342234
L1631	1312433	L1672	1231243	L1713	1224424	L1754	3342132
L1632	2234344	L1673	4343221	L1714	2433113	L1755	4323113
L1633	4211212	L1674	4243132	L1715	1124424	L1756	1224432
L1634	3433422	L1675	4342312	L1716	3313442	L1757	2324311
L1635	1222431	L1676	1113243	L1717	4433134	L1758	2113422
L1636	1122443	L1677	2134423	L1718	2223113	L1759	2344342
L1637	4232113	L1678	3224344	L1719	1121243	L1760	4212342
L1638	2431134	L1679	2433342	L1720	1321223	L1761	1234244
L1639	4324423	L1680	3112132	L1721	4342133	L1762	4342232
L1640	4332234	L1681	1133243	L1722	1323324	L1763	4312442
L1641	1313421	L1682	2344223	L1723	4211242	L1764	2332134
L1642	2242131	L1683	1243313	L1724	2213342	L1765	3343244
L1643	2244432	L1684	1334422	L1725	4342311	L1766	3121324
L1644	3112313	L1685	1121344	L1726	2243431	L1767	1212433
L1645	2334442	L1686	1132334	L1727	4431121	L1768	3132242
L1646	2334342	L1687	4344321	L1728	3111322	L1769	4312431
L1647	4213243	L1688	1123122	L1729	3122112	L1770	4321234
L1648	1231312	L1689	4423421	L1730	4342211	L1771	4342332
L1649	3123131	L1690	3421311	L1731	1342423	L1772	4232112
L1650	2334231	L1691	4232442	L1732	1233132	L1773	2113122
L1651	1124343	L1692	4332131	L1733	2132423	L1774	4233443
L1652	2442243	L1693	3243422	L1734	4423123	L1775	1213313
L1653	4322343	L1694	3433244	L1735	2131231	L1776	1322312
L1654	4313112	L1695	4422342	L1736	4234432	L1777	1232433
L1655	2424311	L1696	2443133	L1737	2134431	L1778	3244421
L1656	3432132	L1697	3121124	L1738	3132234	L1779	4323312
L1657	3313224	L1698	4231223	L1739	2243113	L1780	1212243
L1658	2334244	L1699	1112434	L1740	1132243	L1781	2224311
L1659	1113433	L1700	3244433	L1741	1122423	L1782	2224313
L1660	3124223	L1701	2444233	L1742	2433421	L1783	4311132
L1661	3442224	L1702	2324312	L1743	4243124	L1784	3231124
L1662	2312133	L1703	3423434	L1744	4222131	L1785	3123244
L1663	3213324	L1704	1124331	L1745	4344311	L1786	4334231
L1664	4343121	L1705	1344223	L1746	2124343	L1787	3431212
L1665	3423424	L1706	1343224	L1747	4231112	L1788	3324221
L1666	1313442	L1707	4244321	L1748	4424322	L1789	4432321
L1667	4234421	L1708	1321133	L1749	2131344	L1790	2244312

THE TITAN LOCKSET

Continued from page 21

Keyblanks

Jet	K9
Curtis	K9
Iico	A1176T

SPACE & DEPTH INFORMATION

Shoulder to First Cut: 0.097"
Cut to Cut: 0.150"

DEPTH. ".003"	ROOT DEPTH	BOTTOM PIN	MASTER PIN	TOP PIN
1	.328	.171	.024	.180
2	.305	.195	.045	
3	.282	.219	.069	
4	.259	.240	.093	
5	.236	.264	.114	
6	.213	.288		



THE LIGHTER SIDE

Continued from page 56

high-tech information we find ourselves in today, it's no wonder many of us feel confused and frustrated at times.

Taa-Daa! Enter, your local locksmith association and international trade publications! What better means to

increase your knowledge and exposure to new information?

Most local or area associations provide everything from sharing "tricks of the trade" with other locksmiths at the regular meetings to in depth classes led by qualified instructors on special weekends or at annual area conventions. Now, I must admit, I've never seen a class on "Terminology for the 90's" offered, but there are some on electronic entry

devices and opening techniques for the new vehicles.

Since you're obviously reading this publication, I don't have to tell you how much up-to-date information you can glean from the technical articles found herein every month. Something new—that I hope you've tried—is the self-testing program offered as a means to help you evaluate what you're learning and retaining. Use it.

The survivors of this world, Gilbert reminds us, are the ones who can weather change and come out on top. The best way to do that is to keep abreast of innovations in the field and incorporate them into your daily practices.

Just think, today's youngsters may someday be saying to their peers in the presence of astonished grandchildren, "Can you believe the new cars are priced at two hundred thousand dollars? Why, I remember when...."



NATIONAL

AUTO LOCK SERVICE, INC.

National Auto Lock Service, Inc. offers a wide range of equipment and services for the Automotive Locksmith. From tools and hard to find key blanks to transponder programming, we can take the mystery out of car service. We accept credit card orders, and can ship COD. Contact us for the latest in automotive technology.

www.laserkey.com

TECHNITIPS

Continued from page 83

It's a great tool to have to start your wedges or insert your spreader. In colder climates, you can slide it sideways to cut away ice between the window and the weather stripping since there are no real sharp edges on the putty knife. A regular knife can cut the rubber. I've also found that a putty knife make a great tool for starting "jims" and other flat tools.

R. Lazich
Wisconsin

Ice Scraper Car Opening Tool

We were setting up our new van when we got called out to open a car. When we got there, we found that we did not have a window wedge on the truck. After looking around, we found a plastic ice scraper that worked very well.

Jaunita Ramsey
Texas



Choose S&G Comptronic
electronic safe
locks for...security...
technology...tradition.

[Click here for more information](#)



SCHWAB CORP.

Fire protection for your vital records.

Free freight!!

No middle man!!

[Click here for more information](#)

SHOP TALK

Helpful questions and answers

Shop Talk answers readers questions on any locksmith related topic. Only letters judged to be of general interest will be published. We regret that we cannot answer individual letters. Because of the volume of mail, only those questions answered in this magazine will receive answers. Send your questions to Shop Talk, The National Locksmith, 1533 Burgundy Parkway, Streamwood, IL 60107.

Q: In the last few months a local Chrysler dealer called me to make keys for a couple of 1993 Chryslers that they had the codes for but whose keys would not work. When I saw the codes, they both had a G letter in front of four numbers. I assumed it was the G series codes until I realized that the number was too high to fit in the series (one was

2202 and the other 1696). The automotive cross-reference guides I have say both vehicles should be on the J series codes. Now if that's true, then why do the older G series keyblank fit the doors and ignition? What's the deal?

Stephen Crembler
California.

A: I don't know why, Stephen, but I have been receiving a lot of phone calls regarding this very same problem and the solution has been to use the J series codes instead of the G. The deal may be that Chrysler put the wrong prefix at the beginning of the code. The G series codes go from 0001 to 1394 and use the P1789 keyblank. The J series codes go from

0001 to 3580 and use the P1793 keyblank.

You also noticed that the P1789 keyblank, used on the G series code, fit in the doors and ignition of this newer series vehicle. That is all very possible. Tom Mazzone and I recently worked on a 1990 and 1993 Dodge Diplomat. The key for the F series code used on the 1990 unit fit the door and ignition locks of the 1993 unit that used the J series code. The key, however, did not fit the trunk.

What's even more confusing is that the J series has been replaced by the newest Chrysler L code series (see page 93 of this issue). This series uses a still different keyblank.

SRI
SECURITY
RESOURCES INC.

**SRI and Tech Train Productions are
the automotive specialists - your best
source for automotive tools,
manuals, and videos.**

[Click here for more information](#)

Q: *I have a military site where I do a lot of work on Shaw Walker file cabinets. Unfortunately they all use an S series code that I cannot find anywhere. Can you help?*

*Linda Kitchings
South Carolina.*

A: Typically Shaw Walker cabinets and desks use a removable core Pundra lock. The lock using the S series code (a partial list from S1 - S234 is known) your are asking about uses the Ilco 1534 keyblank: a modified Chicago CG1 can often be used as the core key.

These double sided locks are very similar to many of the Illinois locks. There are a total of eight wafers that are paired up and staggered (two tumblers on wide side, then two on the next, etc.). Unlike the Illinois lock, however, the bitting from one side of the key to the next is independent. For example, in an Illinois lock, the bittings for the same space on each side of the key must add up to five. If the first cut on side A is a 2 depth, then the first cut on side B must be a 3 depth. This is not true of the Pundra

lock. There is no relationship between the bitting from side A to side B.

Using the HPC 1200CM, the 47MC cutter and the Continental Micro Code Card, the recommended spacing for these locks is: Side A (Groove Facing You) - .160, .290, .375, .505. Side B (Groove Away From You) - .200, .280, .400, .490.

The three depths are 1 - .250, 2 - .230, 3 - .210.

Two different core keys are available for these units depending on the series core used in the lock. The 72 series key is used on most locks for the Shaw Walker Radius Tempo and Standard Tempo binder bins, sliding cupboard door locks, individual lock for non-insulated files and unit locks for vertical and lateral Fire-Files.

The 73 series key is used on most locks for the unit lock for vertical and lateral non-insulated files, individual door for Fire-Files, and the center drawer lock of the desk pedestal lock.

In most cases, cutting one of these

blanks to A Side - 3351, B Side - 5155 will allow you to remove the core on these S series locks. If a core key is not available, a Chicago CG1 keyblank can be modified by filing the shoulders down and back, allowing it to enter further into the plug.

According to various sources, these locks to have a tendency to hold very bad tolerances in spacing. This is sometimes due to variations in tumbler thicknesses from one lock to the next, and the diecast plug that wears out quickly.

When cutting the keys for this lock it is recommended that you move directly from one cut to the next without removing the cutter from the key. This will give the key a "laser cut" appearance and eliminate the space variation problem.

Because I cannot include the entire bitting list for this series in this answer, Linda, I am faxing you what I have. Any other subscribers needing information on this or any other code series can call our code hotline at 708-837-7636.



ASP Covers the World of Auto Locks

[Click here for more information](#)

TEST DRIVE



*Taking Industry
Products for a Spin
Around the Block*

SCOTSMAN'S 747XU

PRODUCT: Scotsman™ Security Products, Inc. 747XU Tubular Key Cutting Machine. Suggested list is \$889.00. Similar models include 747X for \$687.00 list, and the 747 Econo for \$445.00 list.

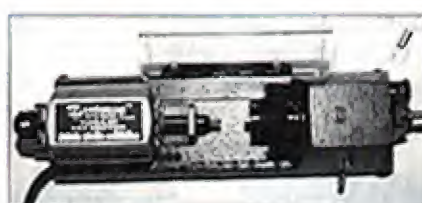
PRODUCT DESCRIPTION: The 747XU is a tubular key cutting machine that is capable of cutting the standard 137 (.375" dia.), UL certified 137A (.400" dia.), and the small 137S (.365" dia.) tubular keys. Left, center and right cutting can be done for seven to 11 pin tumbler locks. Keys can be decoded, duplicated and/or cut by code. The other models offer fewer features.

PRODUCT SPECIFICATIONS: All models use a 110 volt, heavy duty, ball bearing motor attached to a solid die cast base and incorporate a direct drive solid carbide cutter. The 747XU includes shaft extensions and a cutter elevation adjustment allowing the machine to cut .365", .375" and .400" diameter keys, including the Fort thick walled key.

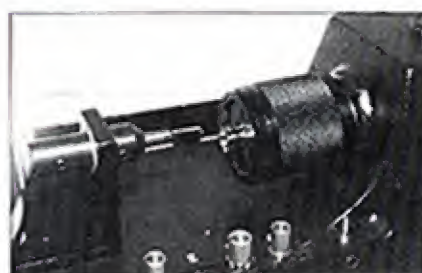
FRIENDLINESS: The friendliness of the 747XU is made possible by the excellent operating manual included with the machine. Starting with a thorough description of tubular keys and tubular key cutting specifications, the booklet ends with detailed instructions on adjusting and operating the machine. Instructions are done step-by-step and include photos and illustrations.

FEATURES: The 747XU is designed with accuracy, ease of operation, and safety in mind. The solid base and smooth ball bearing motor eliminate any vibration and chattering during the cutting. Adjustments can be made to all machine components to assure cutting is accurate.

The shaft extensions are quickly and easily changed using the Allen wrench included with the unit.



1. The Scotsman 747XU.



2. A key already chucked and ready to cut.



3. Setting up for code cutting.

DESCRIPTION:
Tubular key cutting machine.

COMMENTS:
Cuts by code and also duplicates.

TEST DRIVE RESULTS:
Excellent manual makes using the machine easy. Properly indexing the blank is a trick at first, but with a little practice, the 747XU cuts quickly and accurately.

The key being cut is loaded into the chuck from the front and gauged (indexed) against the tip of the cutter.

Easy to use depth and spacing knobs for code cutting are found on the right side of the machine. A depth stop slide is also located here and used for duplicating keys.

A Lexan shield covers the cutting area and protects the eyes from metal cuttings, and must be lowered in order for the motor to operate. An excellent safety feature.

COMMENTS AND SUGGESTIONS:
The trial run proved the 747XU to be a very simple and accurate machine to operate. That it cuts virtually all the tubular style keys a locksmith might run into is also very appealing.

The only minor difficulty is properly indexing the key in the chuck. The uncut key is indexed by pushing it against one blade of the cutter and then tightening the chuck. While a simple procedure, there is a tendency (on the part of the operator, not the machine) to shift the key as the chuck is being tightened. It just takes some practice.

If there are any modifications to be made on this machine, adding a handle or lever to feed the key into the cutter would add control and comfort for the user.

Also, moving the power cord to the back of the machine would be nice. Placed to the front-left, it remains out of the cutting area, but does present itself a slight nuisance.

CONCLUSION: The Scotsman™ 747XU is a simple, accurate and versatile tubular key cutting machine, well worth the money for locksmiths doing large as well as small quantities of tubular key cutting. For those not needing all that the 747XU offers, the 747X serves as an excellent versatile middle-of-the-road machine.